TABLES

OF

ANCIENT COINS,

WEIGHTS and MEASURES,

EXPLAIN'D *and* EXEMPLIFY'D

IN SEVERAL

DISSERTATIONS.

L O N D O N:

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MDCCXXVII.

STOCK VERIFIED

TO THE

KING.

*GREAT Name, which in our Rolls recorded ſtands,
Leads, honors, and protects the learned Bands,
Accept this Offering, to thy Bounty due;
And *Roman* Wealth in *Engliſh* Sterling view.
Read here, how *Britain*, once deſpis'd, can Raiſe
As ample Sums, as *Rome* in *Cæſar*'s Days;
Pour forth as numerous Legions on the Plain,
And with more dreadful Navies awe the Main.

[*A] Tho'

* The King's Name ſtands firſt in the Buttery Books of *Chriſt Church College, Oxon.*

Tho' ſhorter Lines her fix'd Dominions bind,
Her Floating Empire ſtretches unconfin'd.
From *Thetis'* Stores, and not her Neighbours Spoils,
She draws her Treaſure, Fruit of honeſt Toils.
Rome ſack'd, and plunder'd; *Britain* cloaths, and feeds;
Acquires their Riches, but ſupplies their Needs.
Sweet Seat of Freedom! Be thy happier Doom
To 'ſcape the Fate, as well as Guilt, of *Rome*.
Where Riot, Offspring of unwieldy Store,
Enerv'd thoſe Arms, that ſnatch'd the Spoil before;
With coſtly Cates ſhe ſtain'd her Frugal Board,
Then with ill-gotten Gold ſhe bought a Lord.
Corruption, Diſcord, Luxury combin'd,
Down ſunk the far-fam'd Miſtreſs of Mankind.
Hear, Righteous Prince! O hear us loud invoke
Thy Worth unblemiſh'd, to avert this Stroke:
Your ſelf ſo free from every Lawleſs View,
You ſcarce admit the Homage that is due.
Let other Monarchs, with invaſive Bands
Leſſen their People, and extend their Lands;

By

By gaſping Nations, hated and obey'd,
Lords of the Deſarts, that their Sword has made:
For Thee kind Heav'n a nobler Task deſign'd,
To fix thy Empire in thy Peoples Mind.
High on thy *Britiſh* Throne, to mark from far,
And calm the Billows of the riſing War;
To ſmooth the Frowns on fair *Europa*'s Face,
And force reluctant Nations to embrace.
As late the warring Winds, with mingled Roar,
Strugl'd to wreck, yet wafted you to Shore.
So ſhall the Storm, that threats your peaceful Land,
Roll harmleſs o'er, or Burſt where you Command.

CHARLES ARBUTHNOT,
Student of *Chriſt Church, Oxon.*

PREFACE.

I Believe it will be readily own'd that the Knowledge of the Value of the Money, Weights and Measures of the Ancients, is necessary to the understanding of their Writings. The Value of Coins, Weights and Measures is known, when the Proportion, which they bear to other known quantities of the same kind is determin'd, which are commonly those of the Reader's own Country. In order to assist English Readers in this particular, I publish'd about twenty Years ago some Tables, which being out of Print, it was suggested to me that if I would give the Copy, with some other Calculations relating to the same Subject, to my Son, he might make some Profit of them. This interested Motive I frankly own had its Share in producing the present Treatise.

The first Tables were publish'd before the learned Dr. Hooper, Bishop of Bath and Wells, his En-

quiry into the State of Ancient Meaſures; *which, if one conſiders the Uniformity of the whole Deſign, Accuracy of the Calculations, Sagacity of the Conjectures, Skill in reſtoring and comparing Paſſages of Ancient Authors, and the incomparable Learning that ſhines through the whole, excells very far all that was ever publiſhed upon the Subject; and indeed had my Deſign been merely the ſame with that of his Lordſhip, I ſhould not have preſum'd to have wrote any thing further on this matter. As my Calculations differ'd not in any conſiderable matters from his Lordſhip's, I thought it was ſufficient to take notice of thoſe differences without changing the Tables in any material Article. New Books on uſeful Subjects, if not erroneous, are ſo far advantageous to Learning, that being put as it were by accident into a great many Hands, engage ſome to ſtudy a Matter which they would not otherwiſe have thought of.*

I have been always of Opinion that young Gentlemen of an Age to conſider more than the mere Words of an ancient Author, ought not only to take along with them the Chronology, Geography, and a clear Idea of the Antiquities form'd by ocular Inſpection on Models and Figures; but likewiſe

to

my self on my Skill either in Languages, History or Antiquity; far less on the little Skill in Numbers which is demanded for the whole Performance, which, bating one Problem about Interest, requires no great depth of Calculation. I question not but any of them would have executed this Work better than my self. Besides, I have hardly Courage, I am sure not Leisure, to defend my self. Thus they see what they generally aim to prove, is no more than what I freely own before-hand.

It is the Product of Labour more than Judgment, consisting chiefly of Collections from several Authors, and for which I am much obliged to Hostus's Historia Rei Nummariæ. *I propose no Reputation by it, and I hope I shall lose none.*

THE

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A

DISSERTATION,

CONTAINING

The Principles and Authorities upon which the Tables are founded.

CHAP. I.

Of the Antiquity and Inventors of Money.

THE Use of Money or stampt Metals in Commerce has been very ancient, and perhaps the Inventor of it is as hard to be discovered, as those of other Arts.

As it is usual in discourses of this nature to ascend as high as possible, we shall acquaint the Reader that the Inventor of Money was by some *Jewish* Writers believed to be *Cain*, *Adam*'s eldest son, to whom [a] *Josephus* ascribes it: this Author tells you that *Cain* was the first monied man, that he taught his band luxury and rapine; and broke the publick tranquility by introducing the use of Weights and Measures. (The word χρήματα in the Original may signify

B any

[a] Αὔξων δὲ τὸν οἶκον πλήθει χρημάτων ἐξ ἁρπαγῆς καὶ βίας, πρὸς ἡδονὴν καὶ λῃστείαν τοὺς ἐντυγχάνοντας παρακαλῶν, διδάσκαλος αὐτοῖς πονηρῶν ὑπῆρχεν ἐπιτηδευμάτων, καὶ τὴν ἀπραγμοσύνην μὲν, ᾗ πρότερον συνέζων οἱ ἄνθρωποι, μέτρων ἐπινοίᾳ καὶ σταθμῶν μετέστησε.

any sort of possession as well as money.) If arguments *a posteriore* were to be used in this case, I should be very apt to give *Cain* the honour of the Invention; were he now alive, I'm sure it would rejoice his soul to see what mischief it had made among mankind. His lineal descendent and name-sake *Tubal-Cain*, probably must have had his art from him, [b] for he was *a great Artificer in Brass and Iron.*

[c] That *Noah* or *Janus* understood it, may be very well supported by his Image found upon the first *Roman* Coins: one side was stampt with a *Janus bifrons*, and the other with a *Rostrum* or Prow of a Ship. This is as good an argument as an Antiquary could wish for. The same is confirm'd by the Interpreter of *Homer* in *Iliad* 5. who saith that *Janus* first invented a Crown, a Ship, and Brass Money.

[d] That there was current money in *Abraham*'s time is past doubt, tho' it's not sure that it was stampt, for he is said to be *rich in Cattle, in Silver and in Gold.* [e] *Abimelech* gave to *Abraham* as *Sarah*'s brother 1000 *Keseph or pieces of Silver.* [f] *Joseph* was sold by his Brethren for 20 *pieces,* [g] and gave to his Brother *Benjamin* 300 pieces.

Amongst profane Writers there is one [h] *Phido* an *Argive* or *Greek*, who is said to be the first who stampt money; [i] but *Herodotus* with more reason ascribes the invention to the *Lydians.* [k] *Julius Pollux* attributes it to *Ericthonius* amongst the *Athenians* and *Lycians*: [l] Some to the *Naxians*, some to the *Phœnicians*, others to *Ionus* in *Thessaly*, as appears by some verses of *Lucan.* [m] *Cælius* gives it to a Lady, one *Hermodice* wife of *Midas* King of *Phrygia.* [n] Amongst the *Romans* it stands between *Numa* and *Servius Tullius*: *Pliny* gives it to the latter, who was the first that stampt Brass, which the

Romans

[b] Genes. c. 4. σφυροκόπος χαλκεὺς χαλκοῦ καὶ σιδήρου, LXX. Interpretes. Malleator & faber in cuncta opera Æris & Ferri. [c] Plin. lib. 33. cap. 3. In una quidem parte Janus geminus seu bifrons, ex altera vero Rostrum Navis fuit. [d] Genes. c. 13. v. 2. [e] Genes. c. 20. [f] Gen. 37. [g] Gen. 45. [h] Strabo lib. 8. [i] Herodot. lib. 1. πρῶτοι δὲ τῶν ἀνθρώπων, τῶν ἡμεῖς ἴδμεν νόμισμα χρυσοῦ καὶ ἀργύρου κοψάμενοι ἐχρήσαντο. [k] Jul. Pol. lib. 9.

[l] Primus Thessalicæ rector telluris Ionus
In formam calidæ percussit pondera Massæ:
Fudit & argentum flammis, aurumque moneta
Fregit, & immensis coxit fornacibus æra.
Illic quod populos scelerata impegit in arma,
Divitias numerare datum est ———

[m] Celius lib. 21. Antiqu. lect. [n] Plin. lib. 33. cap. 3. Servius Rex primus signavit Æs. antea rudi usos Romæ Timæus tradit. Signatum est nota pecudum: unde & pecunia appellata.

Romans used before unstampt. It seems an obvious invention by a publick Stamp to save the people the trouble of weighing and essaying. [o] Silver was stampt *A. U.* CCCCLXXXV, [p] and Gold was coined sixty two years after. [q] On the other hand, *Suidas* affirms that it was *Numa* the second King of the *Romans* who gave them the first money of Brass and Iron; for before his time they had no other but what was made of hides and shells, and that they were called from his own name *Nummea.* Thus much of the original of money; which has been a great conveniency in the commerce and affairs of mankind: but whether that will balance the mischief it has done, I shall not determine.

CHAP. II.

Of the Metals and other Materials that were commonly stampt into Money, and of some of the most common Impresses.

THE Metals that Money was commonly made of amongst the *Greeks, Romans* and *Hebrews,* were Brass, Silver, and Gold; in the language of those several nations, *Æs, Argentum, Aurum;* χαλκὸς, ἄργυρος, χρυσὸς; *Nahus, Keseph, Zahaw.*

The first Coin being made of Brass, *Æs,* gave the Denomination to money in general among the *Romans,* and the whole turn of their expression is derived from it. [a] *Ære mutare,* to buy or sell. *Æs alienum,* debt; *Æs suum,* what is owing to us. *Æs circumforaneum* by *Cicero* is understood money employed in Usury. *Ærarium,* the Treasury, or place where the money is kept. *Ærarii,*

[o] Ibid. Argentum signatum est anno Urbis CCCCLXXXV. Q. Fabio Consule, quinque annis ante primum bellum Punicum. [p] Ibid. Aureus nummus post annum LXXII percussus est quam argenteus. [q] Suidas in voce Ἀσσάρια. [a] Plin. & Columella.

rii, Officers of the Mint. *Ærarii Milites,* Soldiers that ſerved for pay. [b] *Æruſcare, Æruſcatores,* thoſe who got money by ſcandalous ways. [c] *Adærare,* to ſet a price upon a thing. [d] *Obæratus,* oppreſs'd with debt.

Argentum, Silver, was uſed after the ſame manner for money in general, tho' not ſo frequently. *Argenti ſitis & fames,* a deſire of money, or covetouſneſs. *Argentum conſumere,* to ſpend money. *Argento aliquem circumvenire,* to cheat. [e] *Argentum locare fœnori,* to lay out money at intereſt. *Argentariam facere,* to be an Uſurer. *Argentariam diſſolvere,* to go off the Exchange, or to leave off being an Uſurer. [f] *Argentum præſentarium,* ready money.

Aurum or Gold is uſed after the ſame manner. [g] *Auri ſacra fames,* deſire of Riches. *Vendidit hic auro patriam,* a corrupt Raſcal that ſold his country for Gold or money. The *Engliſh* ſeldom uſe Silver, but often Gold, for money in general.

[h] The *Greeks* uſed χαλκὸς and χαλκίον for money in general. ἄχαλκος without money: ἀχάλκειν to be poor. [i] χαλκίζειν to play for money at even and odd. [k] χαλκιδῖτις *Meretrix,* &c.

Ἀργύριον is uſed in the ſame ſenſe by the *Greeks* for a general appellation of money. [l] τὸ δ' ἀργύριον καλεῖται χρήματα καὶ νομίσματα, that is, Money and Riches are called ἀργύριον. [m] Ἀργυρολογεῖν to collect money. Ἀργυρολόγος, a Collector of Taxes, *&c.*

Χρυσὸς is uſed in the ſame ſenſe. [n] ἄχρυσοι, for poor, or deſtitute of money.

Nabus, Keſeph and *Zahaw* amongſt the *Hebrews* ſignify money in general; only *Keſeph* when joined to a number ſignifies a piece of Silver of a certain value: of which there are innumerable Examples in the Scripture. Thoſe who are skill'd in the *Hebrew* tongue ſay that there are a great number of words in that Language to ſignify Gold.

Æs

[b] Feſtus Pompeius. [c] In Cod. lib. 12. [d] Livius & Cæſar. [e] Cicero in Verrem. [f] Plautus. [g] Virgilius. [h] Heſychius in voce χαλκὸς. τοῦτο ἐπὶ τοῦ χρυσοῦ καὶ τοῦ ἀργυρείου ἔλεγον. [i] Apud Pollucem. [k] Apud Joſephum. [l] Pollux lib. 3. [m] Thucyd. Hiſt. 23, 8. [n] Plato lib. 3. de Legibus.

Brass, or Copper, Silver and Gold have been the common metals for Coin; yet it has been made by barbarous Nations, and in necessitous Times, of other Materials; as Lead, Tin, Iron, Leather, Shells, and even of Wood and Barks of Trees: instances of which might be given, but are of little value as to the Coin it self.

Nummus some derive from *Numa* as was hinted before, tho' it was a word in use amongst the *Greeks*.

Moneta (from whence our word *Money*) comes from *Moneo*; because it admonisheth of the price, value, weight, *&c.*

Pecunia was so called from the figure of Cattle with which it was first stampt by *Servius Tullius*. And Robbing of the publick was called *Peculatus*. *Peculium, quasi pusilla pecunia*, a small Patrimony. *Pecuniam exercere*, to imploy money. *Otiosa pecunia*, ἀργὸν χρῆμα, according to *Demosthenes*, money lying idle without interest. Some are of opinion that *Pecunia* was so called, from [o] *Pecudum Corio*, from the Hides of beasts of which it was first made.

In *Greek* pieces of money were call'd χρήματα from their use; κέρμα, κέρματα, denoting little pieces of money as fit to exchange greater.

I need not insist upon the use of money in the Commerce and Traffick of mankind, the principal is that of saving the commutation of more bulky Commodities.

Merchandising both by Money and Exchange of Commodities was used in *Homer*'s time. There is a great dispute among the Lawyers, [p] whether *Glaucus* his exchanging his golden Armour with the brasen one of *Tydides* was to be reckon'd emption or commutation.

I shall not trouble the Reader with the different names of pieces of money arising from their different form, weight, quantity, from the Princes, States, Nations, Times, Places and Occasions, under which they were coined.

It may be of more use to mention some of the usual Types or Figures, with which different Nations stamped their Coin.

[o] Isidor. Etymol. lib. 16. cap. 17. [p] Homer. Iliad. 7.

[q] The

[q] The *Ætolians* ſtamped upon their Coin-*Hercules* with his Club breaking *Achilous*'s horn.

Alexander, *Bucephalus* or his own Image enthroned, with a Bird in hand, or a winged Victory.

[r] The *Argives*, a *Wolf* or a [s]*Mouſe*.

The *Aſpendii*, *Palæſtritas*, Wreſtlers.

Aſia, a boy riding on a *Dolphin*.

Athenians, an *Owl* with *Pallas*, likewiſe an *Ox*.

Auguſtus Cæſar, the Conſtellation of *Capricorn* under which he was born: and on his Copper Money, the figure of *Cicero*.

Bœotians, a *Fly* with a *Stag*: a *Cantharus* of *Bacchus* with a Bunch of Grapes.

Brutus, on one ſide his own image, on the reverſe a *Pileus* or bonnet with two Daggers.

Byzantines, a *Dolphin* twiſted about a *Trident*.

[t] *Cephalenes*, a *Horſe*.

Chii, a *Harpye*, likewiſe a *Homer*.

Corcyrians, a *Triremis* or Gally rowing.

Corinthians, *Pegaſus* with a *Neptune* ſitting and carrying his *Trident*.

Crotoniatæ, the *Delphick Tripode*.

Cyrenæans, *Ammon*, on the reverſe the *Silphium*, a plant of whoſe juice the *Aſſa fœtida* is made, whence it is called the *Succus Cyreniacus*.

Cyzicenians, a *Lyon*.

Dardania, two *Cocks* a fighting.

Demetrius, a *Neptune Redux*, or come back.

Dymæans, a *Goat* tearing a *Frog*.

Eretrienſes, a *Diana*.

Hadrian the Emperor, the figure of *Juſtice ſitting*.

Hebrews, on their *Shekel*, *Aaron*'s Rod budding, with a *Cenſer* ſmoaking.

Hiſtæans, *Neptune* on a *Whale*.

[u] *Iaſenſes*, a Boy riding on a *Dolphin*.

Italians;

[q] Hoſtus rei Numm. Vet. pag. 60. [r] Interpres Sophoclis. [s] Julius Pollux. [t] Pollux. [u] Plutarch.

Italians, a double-faced *Janus* with a *Ship*, likewise an *Ox* and a *Sheep*.

Leucadians, a Ship.

Livia, a *Ceres legifera*, or reaping.

Locrians, some a *Star*, some a *Grashopper*, others a *Pugil*.

Lycians, a *Lyon* with a *Goat* upon him.

Macedonians, a *Hercules's Club*, and *Goat's Horns*.

Myteleneians, the image of *Sappho* their Citizen.

Metapontinians, *Ceres* with an Ear of Corn.

Naxians, a bearded *Bacchus*, and a *Satyre* with a Cup.

Parians, upon their *Drachms* an *Aratus*.

[x] *Persians*, an *Archer*.

[y] *Peloponnesians*, a *Testudo* or a Shell.

Philip of *Macedon*, *Bigas*, *id est*, Chariots with two horses; or his own Bust; on the reverse himself enthroned with a Bird in hand: which reverse his son *Alexander* took from him.

Phocenses, an *Eagle* and a *Tripode*.

Pyrrhus, a *Pallas* with her Spear enthroned.

Reginians, a *Hare* and a *Chariot*.

Samians, a *Peacock*.

[z] *Seleucus Nicator*, an *Anchor*.

Tarentines, their founder on a *Dolphin*.

[a] *Tenedians*, a *Bipennis* or Ax, with two Heads of a Man and a Woman averse, a Symbol of the punishment of Adultery.

Thasians, a *Perseus*; upon their *Tetradrachms* a *Hercules* their preserver, and a *Bacchus* crowned.

Thebans, *Hercules's Bipennis*, a weapon which we may translate a Poll-Ax.

Thessalians, a *Horse*.

Trachinians, *Hercules* sitting.

Træzenians, a *Trident*, on the reverse a *Minerva*.

Trojans, *Troiam* a Sow.

Vespasian, a *Dolphin* and an *Anchor*.

The

x Plutarchi in Laconicis. y Hesych. z Nico. Iconicus lib. 2. cap. 20. de varia historia.
a Stephanus de Urbibus.

The *Romans* commonly inscribed the heads of their *Emperors*.

There are many other Stamps. *Vide Camerarii historiam rei Nummariæ.*

The value and weights of the common current Coins the Reader will find in the following parts of this book. There were some very rare Coins struck of a pound weight, both of Gold and Silver, particularly those of Gold which the Emperor *Constantine* sent to *Chilperick* King of the *Franks*. [b] There were but fifty of them, with this Inscription, on one side, TIBERII CONSTANTINI SEMPER AUGUSTI. on the other, GLORIA ROMANORUM.

Heliogabalus the Emperor struck some Gold Coins of two pound weight, which his Successor *Alexander Severus* ordered to be melted down.

The Ancients were as careful as we to Coin their Money in due weight and fineness, and keep it up to the Standard; only in times of exigence they have done what has been imitated by all Governments, diminished both the weight and fineness, of which more afterwards. There was this difference between their inspection of money and ours, [c] that the care of the Coinage was committed to the inferiour Magistrates, and I don't find that they had a publick tryal by a *Pix*, as we solemnly practise in this Country.

The penalties against adulterating the Coin, tho' not the same, were very severe in all Nations. One [d] *Diogenes Sinopæus* was only banished for it. [e] Among the *Ægyptians*, both the hands were cut off. [f] By the civil law they were thrown to wild beasts; which was founded upon the *Cornelian* Law, whereby they were to undergo the penalty of Forgery, and the concealer of the Crime was equally guilty. By the same Law it was provided that none shou'd buy Coin made of Tin or Lead. [g] In False-Coinage Slaves were allow'd to discover their Masters, and they were rewarded with their

[b] Georg. Agricola. [c] Cicero lib. 3. de Legibus. [d] Diogenes Laert. lib. 6. [e] Diodor. Sicul. lib. 2. [f] Ulpian. quicunque, ff. ad L. Corneliam de falsis. [g] 153 ff. ubi quis agere, &c.

their freedom for it at the publick Charge: I suppose that was in the case where they serv'd another, besides their proprietor. [h] The Emperor *Tacitus* enacted that counterfeiting Coin should be Capital, with the forfeiture of goods and chattels. It was enacted Treason by the Emperor *Constantine*, as amongst us.

[i] *George Agricola* reckons seven kinds of false money, too long here to enumerate.

CHAP. III.

Of ROMAN COINS.

Of the AS *or* ÆS.

THE *Romans* reckon'd their Money by *Æs*, *Asses*, *Sestertii* or *Nummi*, *Denarii*, *Solidi* or *Aurei*, *Pondo* or *Libra*.

Æs, *Æris*, besides its signification of Money in general, denoted a particular Coin made of that Metal.

[a] There is mention made of *Æs grave*, which was paid by weight and not by tale.

Æris in the genitive is used for an adjective, *pro Æreis nummis seu Assibus*. *Mille Æris* and *Mille Asses* signify the same thing, whereof there are numberless Examples.

[b] This Coin was at first *libralis* or of a pound weight, and ev'n when it was diminished, retained the name of *libella*. So *Dupondius* denoted two *Asses*. The Emperor *Justinian* forbade the calling the Students of the Law of one year's standing *Dupondii*, which name was given them it seems in contempt. [b] The first impress of this Coin was a *Janus geminus*, and on the reverse the *Rostrum* of a Ship.

[h] Flav. Vopiscus in ejus vitâ

[i] Geor. Agric. fine lib. 1. de pretio metall.

[a] Livy lib. 4. in fine. Et quia nondum argentum signatum erat, grave æs plaustris quidem in Ærarium convehentes, speciosam collationem faciebant.

[b] Plin. lib. 34. cap. 3.

As not only signified a piece of money, but any integer, from whence is derived the word *Ace* or *Unit*. Thus *As* signified the whole inheritance. *Hæres ex Asse*, the Heir of the whole estate. Just so the *jugerum* or Acre of land being reckon'd the integer was divided into 12 *Unciæ* as the *As*, after the manner set down in the Tables.

There is often mention made of the *Quadrans* and *Teruncius* as pieces of Coin. [b] The *Quadrans* is called by *Pliny Triuncius*: both *Quadrans* and *Teruncius* are used to signify the smallest Coin. Only *Quadrans* was understood to be the fourth part of the *As Libralis*, and *Teruncius* the fourth of a *Libella* or diminutive *As*. To be called *Quadrantaria* was the utmost reflection on a Gentlewoman. [c] To this *Cicero* alludes in his Oration for *M. Cælius*. *Cæcilius* the Poet call'd *Clytemnestra* so. *Quadrantilla* is the name of a Strumpet in *Petronius*.

[d] That the *Triens* or one third of the *As* was a Coin, is made out from a ridiculous Story in *Pliny*. The family of the *Servilii* had a *Triens* which they fed on festival days with Gold and Silver (proper aliment for a piece of money) and as it throve or decreased, they calculated the fate of the family. *Pliny* tells you the Story from the relation of an old Slave, one *Messala*.

[e] The *As* was by degrees diminished: from the pound weight (as is told at length by *Pliny*) it fell to two ounces in the first *Punick* war, afterwards when *Hannibal* invaded *Italy* to one ounce, then by the *Papirian* law to half an ounce. These alterations were occasioned by the necessities of the commonwealth; but to be

sure

[b] Plin. lib. 33. cap. 3. [c] Cic. in Orat. pro M. Cælio. Nisi forte mulier potens quadrantaria illa permutatione familiaris facta est balneatori. [d] Plin. lib. 33. cap. 13. Unum etiamnum Æris miraculum non omittemus, Servilii familia illustris in fastis, Trientem Æreum pascit Auro & Argento, consumentem utrumque, origo atque natura incomperta est mihi, verba ipsa ea de re Messalæ servi ponam. Serviliorum familia habet Trientem sacrum cui summa cum cura & magnificentia sacra quotannis faciunt, quem ferunt alias crevisse, alias decrevisse videri: & ex eo aut diminutionem aut honorem familiæ significari. [e] Et placuit Denarium pro decem libris Æris, Quinarium pro quinque, Sestertium pro dupondio ac semisse. Librale autem pondus Æris imminutum bello Punico primo, cum impensis Resp. non sufficeret: constitutumque ut Asses sexantario pondere ferirentur. Itaque quinque partes factæ lucri, dissolutumque Æs alienum.——Postea Hannibale urgente, Q. Fabio Maximo Dictatore, Asses unciales facti: placuitque Denarium sedecim Assibus permutari, Quinarium octonis, Sestertium quaternis. Ita Respublica dimidium lucrata est.——Mox lege Papiriana semiunciales Asses facti. Livius Drusus in Tribunatu plebis octavam partem Æris Argento miscuit.

ſure the plenty of Silver and Gold would have done the ſame thing, and brought down ſuch an enormous Braſs Coin.

As amongſt the *Latines* is put for the diminutive of money, *non Aſſis facere, ad Aſſem omnia perdere.*

From *As* is derived *Treſſis, Quadreſſis, Nonuſſis, Decuſſis, Vigeſſis.*

Some think that *Aſſiduus* likewiſe comes from *As*, a man intent upon the penny.

Of the SESTERTIUS.

Seſtertius is ſo called, *quaſi Semiſtertius*, according to a *Greek* Figure: for ἕβδομον ἡμιτάλαντον, which literally tranſlated ſignifies a ſeventh half Talent; yet according to *Voluſius Mætianus*, ſignifies ſix whole Talents and one half: So a *Seſtertius* which contains 2 *Aſſes* and one half, or *duos Aſſes cum tertio ſemiſſe*, is ſo called from *Semiſtertius.* [a] This is affirm'd by *Varro*; and likewiſe by [b] *Vitruvius*, who ſaith, *Etiam quartam Denarii partem, quod efficiebatur ex duobus Aſſibus et tertio ſemiſſe, Seſtertium vocitaverunt.* And the ſame is aſſerted by [c] *Priſcianus.* The *Seſtertius* was a Silver Coin, and never of Braſs, it was equal to the fourth part of a *Denarius*, according to *Feſtus Pompeius* and the above-quoted Paſſage of *Vitruvius*, and ſeveral others to be found in Authors. *Cicero* againſt *Verres* ſpeaking of the price of Corn, makes 3 *Denarii* to be the ſame with 12 *Seſtertii.*

a Varro lib. 4. de ling. Lat. b Vitruv. lib. 3. cap. 1. c Seſtertius olim dupondius & ſemis, id eſt, duæ libræ & ſemis, quaſi Semiſtertius, &c.--- Dupondius enim & ſemis, antiquus Seſtertius eſt.

Of

Of the NUMMUS.

THE *Nummus* when mention'd as a piece of money was the ſame with the *Seſtertius*. *Cicero* againſt *Verres* ſaith, *Cogit Scandilium quinque illa millia nummum dare Apronio*, and immediately after adds, *Cogit Scandilium Apronio H. S. quinque millia mercedis nomine ac præmii dare*. Where it appears that 5000 *Nummi* are put for 5000 *H. S.* or *Seſtertii*. [d] So *Pliny* and [e] *Varro* ſpeaking of the gain ariſing from the fattening of Peacocks, the former calls it 60000 *Seſtertii*, and the latter 60000 *Nummi*.

Beſides *Seſtertius* and *Nummus* are frequently join'd by Authors, and then ſignify the ſame that either doth ſeparately. This is plain from [f] *Columella*, [g] *Valerius Maximus* and others. So *Mille Nummi*, *Mille Seſtertii*, and *Mille Seſtertii Nummi* ſignify the ſame; as do likewiſe *Mille Nummûm*, *Mille Seſtertium*, and *Mille Seſtertium Nummûm*.

The *Greek* Computations proceed upon the ſame Suppoſition, the *Denarius* and the *Drachma* being reckon'd equal. *Plutarch* in *Sylla* ſaith that 1000 *Nummi* was equal to 250 *Drachmæ*, conſequently one *Drachm* is equal to four *Nummi*. [h] *Ariſtotle* ſaith that a *Nummus* was equal to 3 *Semioboli*, which make the fourth part of a *Drachm*. *Plutarch* ſaith that *Cæſar* left by will to every Citizen 75 *Attick Drachms*, and *Suetonius* ſaith he left to each of them 300 *Nummi*.

Seſtertium in the neutral gendre ſignifies *Mille Seſtertiûm Nummorum*. It is a great diſpute among Authors whether they are the ſame word. Some are of opinion that as a *Seſtertium* ſignified two pounds and a half of Braſs, according to the weight of the firſt *Aſſes*; ſo *Seſtertium* ſignified two pounds and a half of Silver, which ſeems to be but a groundleſs imagination; and *Gronovius* is

[d] Plin. lib. 10. cap. 20. [e] Varro lib. 3. cap. 6. de re Ruſtica. [f] Colum. lib. 1. & 3. [g] Valeri. Max. lib. 5. cap. 2. [h] Ariſtot. apud Pollucem lib. 9. *Δύναται δὲ ὁ νοῦμμος τρία ἡμιωβόλια.*

is certainly in the right, who takes *Sestertiûm* in the genitive, and when they say *Mille Sestertium*, the substantive *Corpora* is understood. Let the Grammatical reason of the Phraseology be as it will, it is certain that *Sestertium* signifies *Mille Sestertii Nummi.* The Marks of the *Sestertius Nummus* are IIS. LLS. H.S. H-S. which Characters denote 2 ½ *Asses*. *Budæus* saith he hath observed that the *millenary Sestertium* in good Manuscripts is marked with a line cross the top thus $\overline{\text{HS}}$.

The Reader must still remember that

Mille Sestertii,
Mille Nummi,
Mille H S,
$\overline{HS}$,
Mille Sestertium,
Mille Nummum,
Mille Sestertii Nummi,
Mille H S. Nummum,
Æris 2500,
Denarii 250,
Drachmæ 250,

denote the same Sum, *viz.* according to the Tables 8 *l.* 1 *s.* 5 ½ *d.*

He must likewise observe that in speaking of Sums above a thousand, there is often a double *Eclipsis*, sometimes of the word *Sestertium* or its mark, sometimes of the word *Mille*. In the first and second of those *Epigrams* at the bottom of the page † H S or *Sestertium* is understood. In the others *Millia*. There is another double *Eclipsis* to be observ'd, when they use the numeral *Adverbs* they leave out *Centena Millia*. Thus *Cicero* in 3 *Verrina*. H S *bis & tricies in singulos annos Verri decernebatur, quod aratoribus solveret.*

† Pauca Jovem nuper cum millia forte rogarem. Martial. lib. 6.
Quid promittebas mihi millia Gaure ducenta
Si dare non poteras millia Gaure decem.

Septingenta Tito debet Lupus——
Quadringenta tibi non sunt, Chærestrate surge. Lib. 5.

ret. *Centena Millia* is underſtood. So that the Sum in Cyphers muſt be thus expreſſed 3200000 *Nummi Seſtertii,* or 3200 *Seſtertia*; a *Seſtertium* being equal to 1000 *Nummi Seſtertii.* This is clearly enough expreſſed in the Tables. If the Sum is to be reduced to *Nummi Seſtertii,* then *centum* and *mille* both are underſtood, and that *Decies* or 10 muſt be multiplied by 100000. If you would reduce the Sum to *Seſtertia,* the word *centum* being then underſtood, it muſt be multiplied only by 100: Thus *Decies* HS is 1000000 *Nummi Seſtertii,* or 1000 *Seſtertia.* So that *Decies centena millia* HS, or *Decies* without HS. (*δέκιες apud Plutarchum in Antonio*) *Æris vicies quinquies, denariorum* 250000, *Drachmarum* 250000, are to be found in different Authors and expreſs the ſame Sum, *viz.* 8072 *l.* 18 *s.* 4 *d.* But

> *Mille Seſtertii,*
> *Mille Seſtertia,*
> *Millies HS Seſtertium*

expreſs very different Sums.

Mille Seſtertii is only 1000 *Nummi Seſtertii,* in *Engliſh* money 8 *l.* 1 *s.* 5 ½ *d.* which makes a *Seſtertium.*

Mille Seſtertia is 1000 times that Sum, *viz.* 8072 *l.* 18 *s.* 4 *d.* But *millies HS,* is 100000 times that Sum, or 807291 *l.* 13 *s.* 4 *d.*

When the numbers have a line over them, *Centena Millia* is underſtood, as in the caſe of the numeral Adverbs; thus HS. $\overline{MC}$ ſignifies the ſame with *Millies Centies* HS, that is, 110,000,000 *Nummi,* or 888020 *l.* 16 *s.* 8 *d.* whereas HS. MC. without the Croſs Line denotes only 1100 *Nummi,* or 8 *l.* 17 *s.* 7 ¼ *d.*

When the numbers are diſtinguiſhed by points in two or three different orders, the firſt towards the right hand ſignifies Units, the ſecond thouſands, and the third hundred thouſands: for inſtance III. XII. DC. HS. denotes 300000, 12000, and 600 HS, in all making 312600 *Nummi,* or in *Engliſh* money 5047 *l.* 3 *s.* 9 *d.* *Pliny* ſaith that ſeven years before the third *Punick* war, there was in the *Roman* Treaſury *Auri Pondo* XVI. DCCCX,

DCCCX, *Argenti Pondo* XX. LXX. & *in numerato* LXII. LXXV. CCCC. which is to be thus interpreted, 16810 Pounds of Gold, 22070 Pounds of Silver, and in ready money 6275400 *Nummi*, or 50741 *l.* 10 *s.* $2\frac{1}{2}$ *d.*

I know by experience that thoſe Expreſſions in ancient Authors create a confuſion in the minds of the Readers, and that they have no notions of the numbers, in reading the Authors. Therefore I hope to be excuſed in being a little particular on this Subject.

Of the DENARIUS.

THE *Denarius* was the chief Silver Coin among the *Romans*. As a weight it was the ſeventh part of a *Roman* Ounce. It is from this Standard that both the value of the *Roman* Weights and Coins in the Tables are deduced. In the ſetling of which I have follow'd Mr. *Greaves*, who may be juſtly reckoned a Claſſical Author on this Subject.

That induſtrious, learned, and honeſt perſon affirms that having in *Italy* and elſewhere peruſed many hundred *Denarii Conſulares*, he found by frequent and exact Tryal the beſt of them to amount to 62 Grains *Engliſh*, ſuch as he had carefully taken from the Standards of the *Troy* or Silver Weights kept in the Tower of *London*, and in *Goldſmiths-Hall*, and in the Univerſity of *Oxford*. He arrives very near at the ſame concluſion by two Experiments that were made of the weight of water contained in the *Congius* of *Veſpaſian*, which was 10 *Roman* Pounds. One Experiment was made by *Villapandus* on the *Congius* it ſelf, and the other by *Gaſſendus* upon a model. By the firſt of theſe experiments the weight of the *Denarius* or the ſeventh part of a *Roman* Ounce comes out $62\frac{2}{7}$ Grains, by the ſecond $62\frac{36}{450}$: neglecting the Fraction, he has ſtated the value 62 Grains, or 7 pence 3 farthings *Engliſh*, allowing 8 *Engliſh* Grains to the Silver Penny. This valuation I have follow'd

follow'd in the Computation of Sums, *viz.* ſuppoſing Silver Shillings the Ounce, which although not exactly true, (the preſent Standard of the Coinage, 62 Shillings, or 3 Shillings, is coined out of one pound weight of Silver.) (ſi... don't know the fineneſs of the *Roman* money, may be a Suppoſition as good as any other, and prevent ſome trouble in computation.

The *Roman* Ounce is certainly our *Averdupois* Ounce, but I muſt own that I have differ'd in a ſmall matter from Mr. *Greaves* in ſettling the quantity of *Troy* Grains contained in an Ounce *Averdupois*; for ſuppoſing the *Averdupois* Pound to be to the *Troy* Pound as 175 to 144, and conſiſting of 16 Ounces, makes the *Roman* or *Averdupois* Ounce to be 437 $\frac{1}{2}$ *Troy* Grains, and the *Roman* Pound 5250 Grains. The proportion that was given me as a true one, was 17 to 14, neglecting the laſt Figures, and conſequently the proportion of the *Roman* or *Averdupois* Ounce to the *Troy* Ounce is preciſely as 51 : 56, and by this the *Roman* pound according to my Tables will conſiſt of 5245 $\frac{5}{7}$ Grains *Troy*, which is 4 $\frac{2}{7}$ Grains leſs in the Pound, and if it be a miſtake is a very inconſiderable one. The *Denarius* according to my ſuppoſition will come out 62 $\frac{22}{49}$ Grains: the fraction is not to be neglected in reckoning the Pound. This makes it highly probable that the *Romans* left their Ounce in *Britain* which is now our *Averdupois* Ounce: for our *Troy* Ounce we had elſewhere.

That the *Denarius* was the 7th part of the *Roman* Ounce, is clear from multitudes of paſſages. *Celſus lib.* 5. *cap.* 17. *Sed & antea ſcire volo in uncia pondus denariorum eſſe ſeptem.*

Another way that Mr. *Greaves* made uſe of to find the weight of the *Denarii*, was by the weight of *Greek* Coins, eſpecially *Attick Tetradrachms*, for the *Denarius* was always reckon'd equal to the *Drachm*; but thoſe experiments bring out the *Denarius* heavier: for weighing many *Attick Tetradrachms* with the image of *Pallas* on the forepart, and of the *Noctua* on the Reverſe, he found the beſt of thoſe to be 268 Grains, that is each particular *Drachma* 67 Grains, and from the Golden

Didrachms

Didrachms much the ſame. He mentions one from *Snellius* that weighed 134,5 of our *Troy* Grains, which makes it 67 $\frac{1}{4}$. That the ancient *Roman Denarius* and *Attick Drachma* were reckoned equal, appears partly from what has been obſerv'd before; and further from the Teſtimony of *Pliny*, who lived from the time of *Veſpaſian* to that of *Trajan*, who affirms expreſly [a] that the *Drachma Attica* had the weight of the Silver *Denarius*. *Cleopatra* [b] affirms that the *Italick Denarius* was one *Drachm*. *Cicero* [c] naming the *Donative* of *Octavius* to the veteran Soldiers, calls it 500 *Denarii*, and *Dion* [d] calls the ſame 500 *Drachms*. *Galen* [e] ſaith that by a *Drachm* is meant the ſame weight the *Romans* call a *Denarius*. This is plain from an interpretation of [f] *Aulus Gellius*. *Plutarch* computes the Sums which the *Romans* expreſs by *Seſtertii* in *Drachms* at 4 *Seſtertii* to the *Drachm*, *viz.* the number of *Seſtertii* in the *Denarius*. *Strabo* [g] ſaith that in the Siege of *Caſilinum* a mouſe was ſold for 200 *Drachms*, this *Valerius Maximus* [h] tranſlates 200 *Denarii*. *Athenæus* [i] ſaith that 400 *Attick Talents* make 240 myriads of *Denarii*, that is, 2,400,000 *Denarii*, = 400 *Talents*, or one *Talent* = 6000 *Denarii*, the number of *Attick Drachms* in a *Talent*. *Feſtus Pompeius* ſaith in expreſs Terms that an *Attick Talent* contains 6000 *Denarii*. The ſame appears by comparing [k] *Livy* with *Polybius*.

I have been the more copious in quotations upon this Subject to ſhew the general conſent of Authors of all ages and times in the equality of value of the *Attick Drachm* and *Roman Denarius*. And it would bring in a great confuſion to change that way of reckoning, but then the difficulty is how to preſerve the equality between two Coins which appear ſo different in weight, as 62 and 67 Grains.

[a] Plin. lib. 21. cap. ult. Drachma Attica Denarii argenti pondus habet. [b] Cleopatra, τὸ Ἰταλικὸν δηνάριον ἔχει δραχμὴν α. [c] Cicero lib. 16. Epiſt. ad Atticum. Octavium veteranis militibus, quiqui Caſilini & Calatiæ erant, dediſſe donativum denarios quingenos, quo eos in ſuam ſententiam perduxit [d] Id Dio. lib. 45. refert καὶ ἔδωκεν εὐθὺς πέντε κατὰ πεντακοσίας δραχμάς. [e] Galen. lib. 8. cap. 3. de Medicam. compoſit. πρόδηλον δὲ ὅτι δραχμὴν λέγομεν νῦν ἐν τοῖς τοιούτοις ἅπασιν, ὅπερ Ῥωμαῖοι δηνάριον ὀνομάζουσιν. [f] Gellius. lib. 1. cap. 8. [g] Strabo lib. 5. [h] Val. Max. lib. 7. c. 6. [i] Athen. lib. 4. Dipnoſoph. [k] Liv. lib. 4. Decad. 4.

I shall in the first place give you *Greaves*'s Solution of this Difficulty, in his own words, *viz.* "First that the *Denarius* and *Attick Drachm* being distinct Coins of different States, and not "much unequal in the true weight, it is no wonder, especially "in *Italy* and in the *Roman Dominions*, that they should pass one "for another: No more than that the *Spanish Rials* in our Sea-"Towns in *England*, should pass for *Testars*; or the quarter of "the *Dolar* be exchanged for our *Shillings*: whereas the *Rial* in "the intrinsical valuation, is better than our *Testar* by four grains, "and somewhat more; and the quarter of the *Dolar* is better "than our *Shilling* by more than eight Grains, or a penny; but "because they want the Valuation, Character and Impression of "our Princes, which I call the *Extrinsick* of Coins, therefore doth "the *Spanish* money fall from its true value with us, and so would "ours do in *Spain*. By the same Analogy must we conceive the "*Attick Drachms*, tho' in the intrinsick they were somewhat bet-"ter worth than the *Denarius*. And this seems to be implied by "*Volusius Metianus*: *Victoriatus nunc tantundem valet, quantum qui-"narius olim. At peregrinus nummus loco mercis, ut nunc Tetradrach-"mum & Drachma habebatur.* Which words of his, *loco mercis*, "plainly shew they made some gain of the *Tetradrachmum* and "*Drachma*: As our Merchants and Goldsmiths do of the *Spanish* "*Rials*, and quarters of a *Dolar*, which they could not if they "were precisely equal, but must rather be losers in the melting "or new coining of them. And therefore all modern Writers "that have treated of this Argument, some of them making the "*Drachma* less than the *Denarius*, others equal, but none greater, "have been deceived by a double Paralogism, in standing too "nicely upon the bare words of the Ancients, without carefully "examining the things themselves: First in making the *Denarius* "and *Attick Drachm* precisely equal, because all ancient Authors "generally express the *Attick Drachm* by the *Denarius*, or the *De-"narius* by the *Drachm*: either because in ordinary Commerce and "vulgar estimation, they passed one for another, in the *Roman* State;

" State; or elfe if any were fo curious to obferve their difference, " as furely the Κολλυβιϛαὶ were, yet by reafon of their nearnefs, " and to avoid fractions, and having no other names of Coins " that were precifely equal, whereby to render them, therefore all " *Greek* and *Latin* Authors mutually ufed one for the other. And " fecondly becaufe fome Writers (as *Diofcorides* and *Cleopatra*) af- " firm that the *Roman* Ounce contained eight *Drachms*, therefore " modern Authors infer, that the *Denarius* being equal to the " *Drachm*, and eight *Drachms* being in the *Roman* Ounce (as fo " many were in the *Attick*) that therefore there are eight *Denarii* " in the *Roman*, and confequently that the *Roman* and *Attick* " Ounces are equal. Whereas *Celfus*, *Scribonius Largus*, and *Pli-* " *ny*, as we fhewed before, exprefly write that the *Roman* Ounce " contain'd in their time, (which was after *Diofcorides*,) feven *De-* " *narii*. And being natural *Romans*, and purpofely mentioning " the proportion of the *Denarius* to the Ounce, thereby the better " to regulate their Dofes in Phyfick, it is not probable but they " muft better have known it than the *Grecians*." But I am afraid this Solution will not be fufficient to anfwer about 5 *per Cent.* difference in the value of the Coins. If an *Attick Drachm* of 67 Grains pafs'd for a *Roman Denarius* of 62, the Exchange was very much on the *Roman* Side.

The following Tables were publifh'd before the learned Bifhop *Hooper*'s ingenious *Enquiry into the State of ancient Meafures* appear-ed, which has given a great many new lights in this intricate Subject, and perhaps what he fuggefts may be an anfwer to this difficulty: his words are as follows, page 44. " So is the " proportion, as well of the *Attick* Weight, as of their Coin well " known: But the value of each piece not fo well afcertained as " one could wifh. For the *Drachma*, from whence all their money " is beft eftimated, and which is alfo the principal weight, is very " differently ftated. Our accurate Mr. *Greaves* upon the weigh- " ing of many *Attick Tetradrachms*, found fome, the beft he faith, " of 268 Grains, which give 67 for the *Drachma*: And examin-

" ing the golden Didrachms coined after the Example of the old " *Darici*, by *Philip* and *Alexander*, as he mentions one of each " from *Snellius*, which weighed 134,5 of our Grains; so he specifies three of *Alexander's*, which he had seen, that wanted but " half a Grain of 134, or twice 67 Grains. Such too Dr. *Bernard* met with; but more commonly with those of 66 to the " *Drachma*. The generality of elder Coins that remain give it at 65 " Grains: Some *Arabian* Physicians at 64,28. And it is certain, as we shall see hereafter, that in the time of the first *Roman* Emperors it came to be under 63 Grains: and not very " long afterwards to be under 55, and so to be ⅛ of a *Roman* Ounce. " Thus did the money *Drachma* in process of time decrease: as is " found by the Tryal of a Balance; and will appear by the testimony of old Authors, comparing them with the *Roman* Weight " and Money. But all the while we may suppose the ponderal " *Drachma* to have continued the same, just as it has happened to " us, as well as our neighbours, whose ponderal *Libra* remains as " it was, tho' the Nummary hath much decreased.

And page 55. " This gradual decrease, the succeeding Coins " of the several Ages shew us. And it may be convenient therefore, for the Reduction of their money to ours, to form different Tables for them: The one, for example, after *Solon's* Standard: which may serve, with some little allowance, 'till the days " of *Alexander*: Another more suited to the times that follow'd, " unto the Subjection of the *Greeks* to the *Romans*; and at the " rate of 65 Grains or thereabouts to the *Drachma*: and a third " of 62,57; which was equal, as we shall find, to the *Denarii* of " that weight under the first *Roman* Emperors; and had been equal, " as I shall suppose, for some considerable time before.

Of this we shall speak more fully afterwards.

Mr. *Greaves* is of opinion that the alteration mention'd by *Pliny* in that forecited passage, *lib.* 30. *cap.* 3. of the *Denarius* being ordered to pass for 16 instead of 10 *Asses*, continued from the first institution of it in the second *Punic* war, without any interruption

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tion to *Justinian*'s time: but this opinion is contrary to the whole Classical Style; in which a *Denarius*, 4 *Nummi Sestertii*, and 10 *Asses* are terms equivalent, and denote the same Sums: to change that way of reckoning, would be to introduce nothing but confusion: it is not credible that the Writers expressed the valuation of the *Denarius* according to its first institution, without regard to the present valuation.

He is surprised at the strange and unadvised proportion betwixt the Brass and Silver Moneys of the first times, that X Pounds of Brass should be but answerable to the 84th part (for so much or near it was the *Denarius*) of a pound of Silver; or to speak more clearly that one pound of Silver should be equal in valuation to 840 pounds of Brass.

I am of opinion that tho' *Pliny* gives you the true matter of fact, he assigns a false reason for it: for he seems to attribute the cause of the diminution of the weight of the *Asses* to the necessities of the Commonwealth, whereas it was undoubtedly the change of the Balance of the two Metals of Brass and Silver: and for that reason the Commonwealth gradually reduced the weight of their *Asses*, finding the former proportions too high.

Another method which Mr. *Greaves* takes to determine the weight of the *Denarius*, and the gradual diminution of it, is by the weight of several *Aurei*, it being probable that as the *Athenians* made their χρυσοῦς or *Aurei* double in weight to the silver *Drachma*, so in imitation of them the *Romans* made their *Aureus* double in weight to the *Denarius*: from whence it is concluded that the *Aureus Romanus* falling in its weight, the *Denarius* likewise of necessity must fall. In what manner the *Aureus* was first coined, and how afterwards it lost of its primitive weight, *Pliny* informs us *lib.* 33. *cap.* 3. *Aureus nummus post annum* LXII *percussus est quam Argenteus, ita ut scrupulum valeret Sestertiis vicenis, quod efficit in libras ratione Sestertiorum, qui tunc erant, Sestertios* IↃCCCC. *Post hæc placuit* XL. M *signari ex auri libris: paulatimque principes imminuere pondus, imminuisse vero ad* XLV. M.

This

This passage is corrected by *Greaves* after the following manner, *Postea placuit* X. XL *signari ex auri libris, paulatimque Principes imminuere pondus, imminuisse vero ad* XLVIII.

It is to be observ'd that *Pliny*, who mentions the diminution of the weight of the *Aurei* so nicely as to specify the exact proportions, saith nothing of the diminution of the weight of the *Denarius*, I therefore think it is not perfectly evident that the *Denarius* kept pace with it, although it is generally agreed that the *Denarius* fell from $\frac{1}{7}$ to $\frac{1}{8}$ of an Ounce; and the accurate Bishop of *Bath* and *Wells* has made two different Tables for the Reduction of them to our Standard. But the *Denarius* of the Classical Authors, which is allow'd to be the 7th part of an Ounce, is made use of in the following computations of the *Roman* money.

The Subdivisions of the *Denarius* [a] were the *Quinarius* or half *Denarius*, so called from its value of five *Asses*, [b] the half *Denarius* was likewise called *Victoriatus*.

[c] *Celsus* divided the *Denarius* into 6 parts, which he called *Unciæ*; *Uncia* being a general word, as we said before, for the division of any *Integer*. This was done in imitation of the *Greek* Physicians, who after the manner of their Country divided their *Drachma* into 6 *Oboli*.

[d] The Stamp of the *Denarius* was the image of the *Consul* or Prince under whom it was coined, which is plain from those now extant, and passages of Authors.

The inscription commonly express'd the name of the Prince and the occasion of the coining of it. The Reader may see as an example, in the quotations below, an Inscription of a *Denarius* of *Antoninus Pius*.

The common mark of the *Denarius* was an X or X̶ in imitation of which among the *Latin* Physicians it grew to an *. The *Greeks* used the word δηνάριον in the neutral gendre.

Tully

[a] Varro lib. 4. de lingua lat. In argento nummi Denarii quod denos Æris valebant, Quinarii quod quinos. [b] Volusius Metianus. [c] Corn. Celsus lib. 5. cap. 17. [d] Plin. lib. 6 cap. 20. Matth. 22. Marci 12. Lucæ 20. In una parte ANTONINUS PIUS, AUG. BRIT: in altera vero facie AUGUSTUS BRITANICUS, PONTIFEX MAXIMUS, TRIBUNICIÆ POTESTATIS DUODECIMUM, CONSUL TERTIUM.

[e] *Tully* has the expression *ad Denarium solvere,* which *Hostus* justly blames two Authors for misinterpreting, one understanding it as if it were, *ad minimum solvere,* to pay to the last farthing, the other explaining it of Interest, whereas the true meaning is to pay in *Roman* money.

There is mention made of [f] *Bigati* and [g] *Quadrigati,* which were *Denarii* so called from the Stamps of *Bigæ* and *Quadrigæ* upon the Coins.

[h] *Cornelius Tacitus* mentions *Nummi Serrati,* perhaps from the figure of a *Saw* upon them: what they were is uncertain.

[i] There are likewise mentioned by Authors *Argentei,* and [k] *Argentei minuti,* and *Ærei Phillipei.* Those were in the later times of the Empire and of uncertain value.

Of the ROMAN PONDO.

THE *Pondo Argenti* amongst the *Romans* is a sort of numeral expression of Sums of Money, and is different from the common *Libra,* which consisted only of 84 *Denarii* or 96 *Drachms*: for *As, Æs, Pondo* and *Mina* amongst ancient Authors generally pass for the same. *Budæus* reckons this *Pondo* to consist of 100 *Denarii,* and *George Agricola* of 96, supposing the *Denarius* and the *Drachma* to be equal; according to *Budæus's* valuation, the *Pondo* amounts to the value of an *Attick Mina* or 3 *l.* 4 *s.* 7 *d.* According to *Agricola* to 3 *l.* 2 *s.* 0 *d.*

It is very probable that the *Romans* made use of this Decimal *Pondo,* or *Libra,* in imitation of the *Greek Mina.* For what *Livy* [m] expresseth by *Argenti Pondo bina & selibras, Plutarch* [n] renders 250 *Drachms.*

° *Galen.*

[e] Cicero Orat. pro Quint. [f] Liv. lib. 6. Decad. 4. [g] Plin. lib. 33. cap. 3. [h] Corn. Tacit. German. Pecuniam probant veterem Serratos & Bigatos [i] Spartianus in vita Probi. Lamprid. in Heliogabalo. [k] Spartianus in Aureliano. [l] Spart. in Probo. [m] Liv. lib. 2. Decad. 3. Convenerat inter Duces Romanum Pœnumque, ut quæ pars plus reciperet, quam daret, argento pondo bina & selibras in militem præstaret. [n] Plutarch in Fabio Max. ὡμολογήκει γὰρ αὐτοῖς, ἄνδρα μὲν ἀνδρὶ λύειν τῶν ἁλισκομένων· εἰ δὲ πλείους, οἱ ἕτεροι γένοιντο διδόναι δραχμὰς ὑπὲρ ἑκάστου τῶν κομιζομένων πεντήκοντα καὶ διακοσίας.

[o] *Galen* in his Book *de Compositione Medicamentorum* tells us that some reckon'd 100 *Drachmæ* to the *Libra*. However it is certain that sometimes *Libra* applied to Sums of money, denotes only the *Roman* Pound of 96 *Roman Drachms*. Here it must be considered that when in the Tables Silver is reckon'd at 5 Shillings *per* Ounce, it must be understood of Silver coin'd nearly according to the *English* Standard, which has 18 pennyweight of Alloy in the Pound *Troy*. Now if to a *Roman* Pound of pure Silver you add Alloy in the proportion of the *English* Coinage, it will make in value only 2*l.* 19*s.* 1 $\frac{1}{4}$*d.* But in the common acceptation of Authors the nummary *Pondo* is the same with *Mina*, and makes as we said before 3*l.* 4*s.* 7*d.*. We are not perfectly sure of the Standard of the *Roman* Coin; and weight alone is not sufficient to determine the value to great preciseness. It has been in some instances very course. [p] *Pliny* tells that *Livius Drusus* in his *Tribunate* mixt $\frac{1}{8}$ of Brass with it. *Pondo* is an indeclinable word, and when it is joined with numbers it signifies *Libra*; when it is join'd to other weights, it stands for the same things as σαθμῇ or ὁλκῇ in the *Greek*, signifying the same with *Pondus* or weight in general.

The *Romans* made use of the word *Talentum* or *Talent* in *Grecian* affairs.

[o] Galen. lib. 6. ποτὲ μὲν γὰρ ἀντὶ τῆς λίτρας ρ' δραχμὰς γράφουσιν αὐτοὶ ποτὲ δὲ ἀντὶ τῆς μνᾶς.

[p] Plin. lib. 3. cap. 3. Livius Drusus in Tribunatu plebis octavam partem Æris argento miscuit.

CHAP.

CHAP. IV.

Of the GRÆCIAN COINS.

THE *Greeks* made use of *Drachmæ* in reckoning Sums either in their own or *Roman* affairs: as the *Romans* did of *Nummi Sestertii*: of which there are many Examples in all Authors, especially in *Plutarch*.

[a] A *Drachm* is the hundredth part of a *Mina*.

[b] Δραχμὴ *quasi* δεαγμὴ is a thing taken or apprehended by the hand, ἀ δεάτlομαι, or as you would say a handful of six *Oboli*, which are equal in value to it.

It is a Weight as well as a Coin. The *Attick Drachm* is commonly reputed equal in value to the *Denarius*. And as amongst the *Romans* the *Denarius*, so amongst the *Greeks* the *Drachma* was coin'd both of Silver and Gold. But in reckoning Sums, where it is not otherwise specified, the Silver Coin is understood.

The value of which we have stated in the Tables and in all the following computations to be the same with the *Denarius*, *viz.* 7 $\frac{3}{4}$ *d.* We before observed that the learned Bishop *Hooper* makes the value of the *Attick Drachma* different in different ages, and the highest according to the weight of the Standard *Mina* of *Solon* 68,4 Grains; but he owns that it fell afterwards to about the value of 62,57; which is much the same with that in the Tables. And upon this *Drachma*, and the equality of it to the *Roman Denarius*, almost all the computations in Classical Authors are founded, which we did not think worth the while to change,

 or

[a] Plutarch. in Solone ἑκατὸν γὰρ ἐποίησε δραχμῶν τὴν μνᾶν. & Jul. Poll. in Eupolide. ἡ δὲ Ἀττικὴ μνᾶ ἔχει δραχμὰς ἑκατόν. [b] Eustath. in Iliad. I. Ὀβολὸν δὲ (λέγεται) σιδήρου τι ἔλασμα, σχῆμα μὲν πᾶς ἔχον ὀβελοῦ, ὁ μὴν καὶ εἰς πέρας τι ὀξὺ λῆγον. τούτων δὲ ἀθρόον ἓν τῇ παχύτητι, ὥστε ὀβολοὶ ἓξ τὴν δράκα ἐπλήρουν, καὶ τοῦτο ἐλέγετο δραχμὴ, ὀβολῶν τοιούτων ἓξ ὡς, ὅσων ἀποδέδεχθαι δύναται χείρ.

or diverſify in a few inſtances that may be in earlier times. But if this Suppoſition be true, and the Reader of ancient Authors is reſolved to be nice, the value of the ſeveral *Drachmas*, according to the Biſhop's Suppoſition, From 70 Grains downwards is as follows.

Weight	Value	
gr.	*d.*	*q.*
70, - - - -	8	3
68,4 - - - -	8	2 $\frac{1}{5}$
65,5 - - - -	8	0 $\frac{3}{4}$
62,57 - - -	7	3 $\frac{2}{7}$

[c]The *Drachma* was divided into 18 *κεράτια* or *Siliquæ* as well as into 6 *Oboli*.

There were different *Drachms* in different Countries.

[d]The *Drachma Æginæa* is commonly reckon'd to be equal to 1 $\frac{2}{3}$ of an *Attick Drachm* or 10 *Attick Oboli*. [d]The *Athenians* called it *παχεῖαν* or thick. [e]It was the pay of a Horſeman even amongſt the *Athenians*. There is frequent mention made of it in *Hippocrates*.

[f]There is mention likewiſe made of the *Corinthian Drachm*, but it's value is uncertain: it is ſuppos'd by ſome Authors equal to the *Attick*.

[g]The *Ægyptian Drachm* according to *Cleopatra* was equal to an *Obolus* or the 6th part of the *Attick Drachm*.

There were coin'd likewiſe the Parts and Multiples of a *Drachma*, the [h]*Semidrachma*, [h]*Didrachmum*, [i]*Tridrachmum*, and [k]*Tetradrachmum*, which was called the [l]Γλαυξ or Owl, likewiſe [m]*Pentadrachmum*, and [n]*Hexadrachmum*. In ſome Authors you find the word [o]*Pen-*

[c] Heſychius. [d] Julius Pol. lib. 9. ἀλλὰ μὴν τὴν γε αἰγιναίαν δραχμὴν μείζω τῆς ἀττικῆς (δέκα γὰρ ὀβολοὺς ἀττικοὺς ἰσχύει) ἣν οἱ ἀθηναῖοι παχεῖαν δραχμὴν ἐκάλουν, μίσει τῶν αἰγινητῶν, αἰγιναίαν καλεῖν μὴ θέλοντες. [e] Thucyd. hiſt. 5. [f] Thucyd. Hiſt. 1. εἰ δέ τις τὸ παραυτίκα μὲν μὴ ἐθέλοι ξυμπλεῖν, μετέχειν δὲ βούλεται τῆς ἀποικίας, πεντήκοντα δραχμὰς καταθέντα κορινθίας μένειν. [g] Cleopatra. δραχμὴ δὲ καὶ ἄλλη ὁμώνυμος καλεῖται αἰγυπτιακὴ, ἥτις ἕκτον μέρος ἐστὶ τῆς ἀττικῆς δραχμῆς, ἔχουσα ὀβολὸν α. [h] Jul. Pollux. [i] Ariſtoph. in Pace. [k] Cicero Epiſt. lib. 12. [l] Interpres Ariſtoph. ἐκλήθη δὲ τὸ νόμισμα τὸ τετράδραχμον ποτὲ ἡ γλαύξ. [m] Numiſma Cyrenæorum apud Pollucem. [n] Heſychius, & Ariſtoteles lib. 2. Oeconomic.

[o] *Pentecontadrachmum*, or 50 *Drachms*, which if it were a Silver Coin, must have been very large.

[p] When the word ἀργυρίȣ is join'd with a number, it is to be understood of *Drachms*.

[q] There is mention made of Βȣ̃ς, *Bos*, the *Ox*, so called from the Stamp; [r] it is reputed equal to the *Didrachmum*, [s] and was coin'd both of Gold and Silver. This Coin was perhaps one of the ancientest of all in *Greece*; it is mention'd by *Julius Pollux* and several other Authors, who say it was known to *Homer*, and he is thought to allude to it, when he speaks of *Glaucus* exchanging his Golden Armour, that were worth 100 Oxen, for the Brass one of *Diomedes*: from whence it would follow that this Armour must not have been entirely of Gold, because a βȣ̃ς being only a *Didrachmum*, as *Pollux* affirms, and is likewise plain from *Aristophanes*; the Armour according to this way of reckoning was worth a very small Sum.

Ὀβολὸς, *Obolus*, so called from the form of a Spit, because it was coined in an oblong shape.

There are mentioned the *Semioboli*, the *Duoboli*, the *Trioboli* and *Tetroboli*.

[t] Χαλκὸς a small Brass Coin, the 6th part of an *Obolus*, *Dichalcus* the third part of an *Obolus*.

[u] There is even mention'd the Λεπτὸν, the seventh part of an *Obolus*.

[x] The Στατὴρ, so called from weighing. *Stater* as a weight signifies a pound. They were coin'd both of Silver and Gold, but most commonly of the latter. They were of different Weights and Names, according to the different Princes and Countries who coin'd them, as

Philippick, *Alexandrian Daricks*, some were *Didrachmi*, others *Tetradrachmi*.

The

[o] Apud Platonem & Jul. Pollucem. [p] Athenæus lib. 4. [q] τὸ δὲ παλαιὸν τȣ̃το ἦν Ἀθηναίοις νόμισμα, καὶ ἐκαλεῖτο βȣ̃ς, ὅτι βȣ̃ν εἶχεν ἐντετυπωμένον. [r] Pollux lib. 9. καὶ ἐν τῇ παρὰ Δηλίοις θεωρίᾳ τὸν κήρυκα κηρύττειν φασὶν, ὁπότε δωρεάν τινι δίδοιτο, ὅτι δοθήσονται αὐτῷ τοσȣ̃τοι βόες, καὶ δίδοσθαι καθ' ἕκαστον βȣ̃ν δύο δραχμὰς Ἀττικάς. [s] Scholiastes Homeri ἑκατὸν βοῶν τιμῆς ἄξιος, ἢ ἑκατὸν χρυσῶν νομισμάτων. [t] Suidas ὀβολὸς δὲ παρ' Ἀθηναίοις ἓξ ἐπιχάλκων. [u] Suidas χαλκȣ̃ς λεπτῶν ζ. [x] Julius Pollux & Suidas.

The following Coins are likewise mentioned in Authors.

[y] Κόρη, the Maid, so called from the figure of *Pallas*, equal in value to a *Tetradrachm*.

[y] Χελώνη, the Shell, so called from the Type, of uncertain value.

[z] Σύμβολον, *Symbolum*, a small Coin of uncertain value.

[a] Λεπτὶς, so called from its smallness, it was equal to 1 ½ of the *Ceratium*, which was ⅓ of the *Obolus*.

[b] Ευθεῖα, a *Semidrachma*, or *Triobolus*.

[b] Κίδαβος, ¼ of an *Eutheia*.

[b] Κραπάταλλος, *Crapatallus*, equal to 8 *Eutheiæ*, consequently equal to a *Tetradrachm*.

[c] Τροιζήνιον, *Træzenium*, with a *Pallas* on one side and a *Trident* on the reverse; it was of uncertain value.

[d] Κόλλυβος, supposed equal to the *Roman Sestertius*.

[e] Κύλλυνον, a small Coin of uncertain value.

[f] Κολύμβων, *Colymbum*, of uncertain value.

[g] Κέρμα signifying a small Coin fit to exchange a greater, from whence κερματίζειν to exchange Money.

[h] Φόλλις a sort of an *Obolus*.

[i] Δημαρέτιον, so called from *Demareta* the wife of *Gelon*.

[k] Λίτρα, which signifies *Libra* a pound weight, is likewise a name for a small Coin equal to an *Æginæan Obolus*.

[l] There is likewise mention made of Οὐγγία, or the *Uncia*, which the *Sicilians* borrowed from the *Roman Libra*.

[m] Κοδράντης, *quadrans*, or the fourth part of an *Obolus*.

Γρὺ, a small piece of Coin used proverbially.

[o] Ἀσσάριον, used for the *As*, and sometimes for the *Obolus*.

[p] Πέλανορ, equal to 4 *Chalci*.

Ὀβολκαὶ

y Jul. Pollux lib. 9. z Pol. ibid. Σύμβολον βραχὺ νομισμάτιον, ἡμίτομόν τι νομίσματος. a L. Cælius lib. 10. cap. 2. b Jul. Pollux lib. 9. c Pausanias in Corinthiacis. d Hesychius & Pollux lib. 3, & 7. e Pollux lib. 9. ἐπὶ δ᾽ ἂν κ̀ κύλλυνον, λεπτόν τι νομισμάτιον. f Suidas Κολύμβων εἶδος νομίσματος. g Suidas interpretatur κέρματα, τὰ λεπτότατα, hoc est, minutissimos nummos. h Hesychius in voce κοδράντης sic ait: κοδράντης τὸ πᾶν, ἢ τὸ τέταρτον τῆς φόλλεως. i Pollux lib. 9. Δημαρέτιον νόμισμα, ἡ Δημαρέτη Γέλωνος ἦν γυνὴ, κατὰ τὸν πρὸς Λίβυας πόλεμον αἰτηθεῖσα αὐτῷ τὸν κόσμον εἰσπραξαμένη παρὰ τῶν γυναικῶν συγχωρηθεῖσα νόμισμα ἔκοψατε. k Pollux lib. 9. κ̀ μὴν ἐν Ἀκραγαντίνων πολιτείᾳ, φησὶν Ἀριστοτέλης, ζημιοῦσθαί τινα πεντήκοντα λίτρας δύναται δὲ ἡ λίτρα ὀβολὸν Αἰγιναῖον. l Pollux lib. 9. m Hesychius. o Suidas ἀσσάρια ὀβολοί. p Hesychius. πέλανορ τὸ τετράχαλκον, Λάκωνες.

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[q]'Οδολκαὶ, *Cretian Oboli.*

[r] Νεμία from *Nummus*, interpreted likewiſe *Oboli.*

[s] Μέλισσα, *Meliſſa*, an *Obolus.*

The vaſt number of ſmall Governments in *Greece* occaſioned a great variety of names of Coins.

The Mina Attica *of Silver.*

MNA, *Mina Attica*, contain'd 100 *Drachmæ* or *Denarii*, and the Tables proceed on that principle in reckoning Sums of Money, where a *Mina* is made 3 *l.* 4 *s.* 7 *d.*

Thus *Dionyſius Halicarnaſſeus* in reckoning up the *Roman Cenſus* makes the ſeveral Claſſes ſtand thus:

Fifth, *Minæ* XII. *cum ſemiſſe*,	or *Æris* XII. *millia cum ſemiſſe*
Fourth, *Minæ* XXV. - - - - - -	*Æris* XXV. *millia*
Third, *Minæ* L. - - - - - - - -	*Æris* L. *millia*
Second, *Minæ* LXXV. - - - -	*Æris* LXXV. *millia*
Firſt, *Minæ* C. - - - - - - - - -	*Æris* C *Millia.*

In the fifth *Cenſus* he differs from *Livy*, who makes it XI *millia Æris*, which is ſome miſtake or falſe reading; for in the reſt they are exactly the ſame, making the *Mina* equal to 100 *Denarii* or 1000 *Aſſes*: for it was equal to ſo much of *Roman* money, as appears by comparing two paſſages, one of [u] *Appianus* and another of [x] *Suetonius*. For, ſpeaking of a *Congiarium* given by *Cæſar*, the former calls it a *Mina*, and the other calls it *quadringenos Seſtertios*, which is equal to 1000 *Aſſes*, or 100 *Denarii.*

[y]The old *Attick Mina* at firſt contain'd 75 *Drachmæ*, but afterwards *Solon* augmented it to 100; as *Plutarch* relates. And beſides him

q Heſychius ὀδολκαὶ, ὀβελοὶ κρῆτες. r Idem. ſ Idem. μέλισσα, ὀβολὸς, ὅς ἐστι μέρος δραχμῆς. t Plutarch in Solone ἑκατὸν γὰρ ἐποίησε δραχμῶν τὴν μνᾶν. u Appianus lib. 2. Bell. Civil. x Sueton. in Cæſare. y Plutarch. in Solone. ἑκατὸν γὰρ ἐποίησε δραχμῶν τὴν μνᾶν πρότερον ἑβδομήκοντα καὶ τριῶν οὖσαν. *But* Agricola *inſtead of* τριῶν *reads* πέντε.

him [z] *Pollux*, *Suidas* and [a] *Hippocrates* affirm that the *Mina Solonis* was equal to 100 *Drachmæ*.

[b] The *Mina Attica* was the 60th part of the lesser *Attick Talent*.

Of some Asiatick *and* Barbarian Coins.

Κιϛοφόρος, *Cistophorus*, was a *Rhodian* Coin, so called from the Stamp of a *Cista* upon it. *Festus Pompeius* saith that 7500 of them was equal to 400 *Denarii*; consequently, a *Denarius* being $7\frac{3}{4}$*d.* a *Cistophorus* must be about $4\frac{1}{4}$*d.*

This Coin is mention'd both by [c] *Livy* and [d] *Cicero*.

Ιαλύσιον, so called from *Ialysium*, a City in *Rhodes*. This Coin is mentioned by *Hesychius*.

[e] Τενέδιον νόμισμα, so called from the Island *Tenedos*. On one side of it there was an *Ax*, and on the reverse two heads on one Neck. For there was a certain King of *Tenedos* who made a Law that Adulterers should be beheaded, both the man and woman. It happening afterwards that his own Son was found to be guilty of Adultery, the Law was put in execution against him; and after he was beheaded, the Ax of *Tenedos* was used as a proverb to denote cruelty. And in memory of the death of this person, the foremention'd Stamp was put on the Coin.

[f] Ομηρος, a Coin of the *Smyrnæans*, so called from *Homer* whom they claim to be their Countryman.

Τύριον νόμισμα, of the value of a *Tetradrachm*, is mentioned by *Suidas* and [g] *Josephus*.

Σίγλος is mentioned by *Hesychius*, and reckon'd by him, in one place worth 8 *Attick Oboli*, in another, worth 2 *Drachms*; and by

[z] Pollux lib. 9. [a] Hippocrates lib. 5. cap. 12. De composit. Medicam. [b] Suidas in voce ὀβολός. ἡ δὲ μνᾶ ἑξηκοστόν ἐστι τοῦ ταλάντου. [c] Livius lib. 7. Decad. 4. [d] Cicero lib. 2. Epist. 1. ad Atticum. [e] Stephanus de Urbibus. ἢ μᾶλλον, ὥς φησιν Ἀριστοτέλης ἐν τῇ Τενεδίων πολιτείᾳ, ὅτι βασιλεύς τις ἐν Τενέδῳ νόμον ἔθηκε, τὸν καταλαμβάνοντα μοιχοὺς ἀναιρεῖν πελέκει ἀμφοτέρους. ἐπειδὴ δὲ συνέβη τὸν υἱὸν αὐτοῦ ληφθῆναι μοιχόν, ἐκύρωσε καὶ περὶ ἰδίου παιδὸς τηρηθῆναι τὸν νόμον, καὶ ἀναιρεθέντος εἰς παροιμίαν ἐλθεῖν τὸ πρᾶγμα ἐπὶ τῶν ὠμῶς πραττομένων. διὸ τοῦτό φησιν, ἐπὶ τοῦ νομίσματος τῶν Τενεδίων κεχαράχθαι ἐν μὲν τῷ ἑτέρῳ μέρει πέλεκυν, ἐπὶ δὲ τοῦ ἑτέρου δύο κεφαλὰς εἰς ὑπόμνησιν τοῦ περὶ τὸν παῖδα παθήματος. [f] Strabo lib. 14. [g] Lib. 14. cap. 2. De Bello Judaic.

by *Xenophon* it is ſaid to be worth 7 ½ *Attick Oboli.* It was a *Perſian Coin.* There were likewiſe *Ægyptian* σίγλοι of 16 *Attick Drachms* value: which Coins ſeem to have had their name from the *Shekel* of the *Jews.*

Δανικὸν νόμισμα or δανικὴ, a *Perſian* Money mentioned by *Pollux.*

[h] Δανακὴ, a piece of money given to the dead to pay their freight over *Acheron.*

[i] Δανάη, a money of the *Barbarians* worth ſomewhat more than an *Obolus.* This was ſaid alſo to be given to the dead: *Lucian* in his Dialogues ſays that in his Time an *Obolus* was the common fare for *Charon*, but in *Ariſtophanes* he asks two *Oboli.*

Ὕλλος is mention'd by *Pollux* as a piece of money.

Suidas ſpeaks of a *Cyrenæan* Coin, which had on one ſide *Hammon*, and on the other the *Silphium* a ſort of *Herb.* From which the *Succus Cyreniacus* was expreſſed.

[k] Χία is mentioned by *Thucydides* either as a Coin or Sum of Money, ſuppoſed to be ſo called from *Chios.*

Πτολεμαΐκον, ſo called from *Ptolemy.*

Βερενίκιον νόμισμα, ſo called from Queen *Berenice* that coin'd it. Theſe two Coins are mention'd by *Pollux.*

Αρυανδικὸν νόμισμα, mentioned by *Heſychius*, ſo called from *Aryandes*, who was made Governour of *Ægypt* by *Cambyſes* the Son of *Cyrus.*

Κορσίπιον, likewiſe called *Cerſæus*, an *Ægyptian* Coin ſpoken of by *Heſychius.*

Ξύνιστρον νόμισμα mentioned by *Heſychius.*

Τροπαὶ a certain Coin mention'd by the ſame.

Φιλιστίδιον νόμισμα likewiſe ſpoken of by him.

Κέρσα is ſaid by *Heſychius* to be an *Aſiatick* Coin.

Δίκεραιον

h Suidas. τοῦτο νομίσματός ἐστιν ὄνομα, ὃ τοῖς νεκροῖς ἐδίδοσαν, πάλαι συγκηδεύοντες, ὡς ἀχερουσίας ἐπιβαθρον. i Δανάη νομισμάτιόν τι βαρβαρικὸν, δυνάμενον πλέον ὀβολοῦ ὀλίγῳ τινί. k Thucyd. lib. 8. ὁ δὲ μίνδαρος ἐν τούτῳ καὶ αἱ ἐκ τῆς χίου τῶν πελοποννησίων νῆες ἐπισιτισάμεναι δυσὶν ἡμέραις, καὶ λαβόντες παρὰ τῶν χίων τρεῖς τεσσαρακοστὰς ἕκαστος χιάς, τῇ τρίτῃ διὰ ταχέων ἀπαίρουσιν ἐκ τῆς χίου πελάγιαι.

Δίκεϱανον & *δίκεϱατον νόμισμα*, as the name imports, had two heads like the *Roman* Coin with a *Janus bifrons*, and that of *Tenedos* formerly mention'd.

Ἐπίχυτον, a Coin said by *Hesychius* to be made of Silver or Lead.

Χαλκοῖ, an *Ægyptian* Coin of the weight of a *Drachma*, both Silver and Gold.

Θάσιος, a Coin weighing four *Drachmæ*.

Κένσος was either a Coin, or a certain Sum of Money.

Ἥμαθον, a *Cyzicenian* Coin mention'd by *Hesychius*.

Of the TALENT.

TAλαντον, or *Talentum*, has a great many Significations. In *Homer* it commonly signifies a Balance: and therefore the Grammarians derive it from *τλῆναι, ἀπὸ τȣ̃ τλῆναι τὸ βάϱος*, because it supports a weight: from hence comes *ταλαντέω, ταλαντάω*, & *ταλαντεύω*, which signify to hang or weigh.

The *Romans* borrowed the word *Talentum* from the *Greeks*, but they seldom used it, except when they spoke of *Græcian* or *Asiatick* affairs; and when they had occasion to translate *Greek* Authors. *Terence* and *Plautus* who took their fables from those Writers, use it commonly.

Τάλαντον (saith *Pollux lib.* 9.) *μέγιστόν ἐστι χϱυσίȣ ϗ ἀϱγυϱίȣ μέϱος.* And *Epiphanius lib.* 1. defines it so: *τάλαντόν ἐστι, τὸ ὑπεϱβάλλον πᾶν σαθμώμενον μέτϱον.* By both which is meant that a *Talent* was the biggest of all weights. *μέτϱον* with the *Greeks* signified in general the measure of things by the bulk, whether dry or liquid, and also the measure of weights and distances.

A *Talent* was twofold, signifying either so much weight or a sum of money: the value of it differ'd according to the different Ages and Countries in which it was used.

Every

Every *Talent* consists of 60 *Minæ*, and every *Mina* of 100 *Drachmæ*, but the *Talents* differ in weight according to the different *Minæ* and *Drachmæ* of which they were compos'd: there was an ancient *Attick Talent* said to consist of 80 *Minæ*, and Authors distinguish that from the *Talent* of 60 *Minæ*. This is what [a] *Livy* means, when he speaks of *Antiochus*'s Tribute of 12000 *Talents* to be paid in 12 years in equal Sums, every *Talent* to be no less than 80 *Roman* Pounds; this great *Talent* is likewise gather'd from *Plautus* in his *Mostellaria*, when *Tranio* saith there were four times 40 *Minæ* owing, *Simo* answers, then we must have as many *Talents* as you and I, that is two. But all this may mean that the old *Attick Talent* was then fallen in value. A *Talent* of 80 *Roman Libræ* would make the *Mina* equal to $1\frac{1}{7}$ of the *Libra*: which if it was the numerary *Pondo*, would make the *Talent* of 80 *Attick Minæ*; if it is the Ponderal *Libra*, then it will make the *Mina* of 7008 Grains, about our *Averdupois* Pound.

The lesser *Attick Talent* contain'd 60 *Minæ Atticæ*. *Suidas* saith, *τάλαντον μνῶν ἐστιν ἑξήκοντα*. And *Pollux lib.* 9. *τάλαντον τοῦ ἀργυρείου ἠδύνατο ἑξήκοντα μνᾶς ἀττικάς*. *Rhemnius* has the following verses.

> *Cecropium superest post hæc docuisse talentum:*
> *Sexaginta Minas, seu vis sex millia Drachmas.*
> *Quod summum doctis perhibetur pondus Athenis.*

Talentum Euboicum, so called from *Eubœa* an Island near the coast of *Attica*, is mention'd by [b] *Livy*. Some think it to be the same with the *Attick Talent*, because both those Countries used the same weights. For the *Mina Euboica* was *centenaria*, or consisted of 100 *Drachmæ Atticæ*, as well as the *Attick Mina*. [c] *Herodotus* saith the *Babylonian Talent* was equal to 70 *Minæ Euboicæ*, and [d] *Pollux* affirmeth that it was equal to 7000 *Drachmæ Atticæ*; whence it fol-

F lows

a Livius lib. 38. Argenti probi duodecim millia Attica Talenta dato intra duodecim annos pensionibus æquis. Talentum ne minus pondo octoginta Romanis ponderibus pendat.
b Liv. lib. 8. Decad. 4.
c Herodot. lib. 3.
d Pollux lib. 9.

lows that 70 *Minæ Euboicæ* were equal to 7000 *Drachmæ Atticæ*, and consequently one *Mina Euboica* equal to 100 *Drachmæ Atticæ*, which is exactly the number of *Drachmæ* in the *Attick Mina*.

It was by the *Eubœan Talent*, that *Darius* King of *Persia* order'd the Gold in his Dominions to be paid him.

Talentum Æginæum, so called from the Island *Ægina* on the coast of *Greece*, contain'd 6000 *Æginæan Drachmæ*, which according to *Pollux* make 10000 *Attick Drachmæ*. [e] *A. Gellius* takes a *Talent* or 10000 *Drachmæ* for the same, and makes it 10000 *Denarii* in *Roman* money, and in *English* money.

[f] *Talentum Rhodium*, according to a passage in *Festus Pompeius*, is much less than it is made in the Tables, being only worth 4000 *Denarii*; but there is a great dispute about this passage, and it is suppos'd to be corrupted: for it is contradicted by another of the same Author, where he saith that the *Rhodian Talent* is equal to 4000 *Cistophori* and 500 *Denarii*.

[g] *Talentum Babylonicum*, according to *Herodotus*, is equal to 70 *Euboick* or *Attick Minæ*. *Pollux* affirms the same thing, and so doth *Ælian*.

[h] The *Syrian Talent* is equal to 15 *Attick Minæ*, or 1500 *Attick Drachms*.

[i] The *Ægyptian Talent*, as by the Table, consisted of 80 *Attick Minæ*. *Darius* the Son of *Hystaspes* the Monarch of *Persia*, ordered his Silver to be paid in *Babylonian Talents*, and his Gold in *Euboick*.

There is some diversity of opinions in Authors about fixing the value of those *Talents*: the Tables are made on the best Information I could get.

There is another Talent much older and much less than any of the above-mentioned, which we may call the *Homerical Talent* of Gold, suppos'd to be equal to 3 *Attick Aurei*. *Pollux* speaks of such a *Talent*. *Eustathius* upon *Homer* reckons it worth 24 *Drachmæ*:

[e] In hist. Demosthenis & Laidis. [f] Festus Pomp. lib. 18. [g] Herodot. lib. 3. [h] Pollux lib. 9. [i] Plin. lib. 33. cap. 3.

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Drachmæ: perhaps it may be of uncertain value, but that it was an inconſiderable Sum, is conjectured from the paſſage of *Homer*, where deſcribing the prizes at the funeral of *Patroclus*, he puts them in the following order. Firſt, The captive woman and a *Tripod*; Second, a Mare big with Foal; Third, a Kettle; Fourth, two *Talents* of Gold; Fifth, a Braſs Vial. Where the two *Talents* of Gold are propos'd as the moſt inconſiderable prize but one. Several Authors write, that amongſt the old *Greeks* a *Talent* of Gold was very ſmall; and the conjecture of the learned Biſhop of *Bath* and *Wells* ſeems to be well founded, " that this *Talent* of " Gold, tho' not equinumerant (Ἰσάριθμον the Phraſe is) nor yet " equiponderant (Ἰσοστάσιον) as to any other; yet was equivalent " (Ἰσοδύναμον) to ſome correſpondent *Talent* in Braſs, whatſoever " it was, whoſe under parts kept the common proportion between " themſelves; a Talent we may ſuppoſe of the *Phœnicians*, the " great Merchants remembred by *Homer*. For Example, if we " take the value of Gold to Silver to have anciently been, as " ten to one; the rate it bore for a long time in *Greece*. And " if we ſuppoſe the value of Silver to the Braſs of the *Cyprians*, " or *Copper*, to have been with their neighbours the *Phœnicians*, " as one to a hundred (and for a long time it has ſince generally " went not much above that value:) we then have ſix *Attick* (or " *Tyrian*) *Drachma's* weight of Gold equal in value to ſix thouſand " *Drachma's* weight of Braſs.

According to this ancient *Talent* ſome reckon the Treaſure of King *David*, particularly that mention'd 1 *Chronicles* xxii. *Now behold in my Trouble I have prepared for the Houſe of the Lord a hundred thouſand Talents of Gold, and a thouſand thouſand Talents of Silver*: which according to the common reckoning would amount in Gold *Talents* to the value of 547,500,000 *l.* and the Silver to above 342,000,000 *l.*

Or reckoning according to the decuple proportion of Gold to Silver, the two Sums would be equal.

Josephus lib. 7. *Antiquit.* mentioning the same passage, calls both the Gold and Silver but 100,000 *Talents*, by which it seems he spoke according to some more modern calculation.

David reigned in *Judæa* after the Siege of *Troy*, as may be gather'd from the *Chronicles* of *Eusebius*; so that it is no ways improbable but *Homer* and he might use the same numeral *Talent* of Gold.

[k] Both *Pollux* and *Suidas* inform us of a particular way of reckoning by *Talents* in the more early times; *viz.* *Tertium Semitalentum* signified 2 ½ *Talents*, *quintum semitalentum* signified 4 ½ *Talents*, *septimum semitalentum* signified 6 ½ *Talents*, and in short whatever number was join'd to *Semitalentum* signified the immediate foregoing number of *Talents*, and half a *Talent* more.

It's plain that the *Latins* admitted this way of reckoning sometimes, from the word *Sestertius*, which signifies *tertius semis*, or 2 ½ *Asses*; and in the Law of the XII *Tables* *pes tertius* is put for 2 feet and ½.

CHAP. V.

Of the Jewish *Coins, in which their Weights are likewise consider'd.*

AS the *Romans* reckon'd by *Sestertii* and *Denarii*, the *Greeks* by *Drachms*, so the *Hebrews* reckon'd their Sums of Money by *Shekels*; which is a word (as those skill'd in the *Hebrew* say) which comes from a verb *Sakal*, which signifies to weigh: it was called by the *Greeks* σίκλος and σίγλος. The *Persians* and *Ægyptians*

[k] Pollux ἀρχαία δὲ ἡ χρῆσις, καὶ ἡ τὸ πέμπτον ἡμιτάλαντον, καὶ ἕβδομον ἡμιτάλαντον, ἢ τέσσαρα ἥμισυ τάλαντα, ἢ δύο ἥμισυ, ἢ ἓξ ἥμισυ καὶ ὅλως ὁπόσον, φησί τις, τὸ ἡμιτάλαντον τὸν πρὸ αὐτοῦ ἀριθμὸν ὁλόκληρον εἶναι δεῖ, ἐὰν μὲν ἕβδομον, τὸ ἕκτον, ἂν δὲ τρίτον, τὰ δύο. σὺν δὲ τούτῳ τὸ ἥμισυ τάλαντον τρία ἡμιτάλαντα λέγειν, ὡς καὶ τρία ἡμιμναῖα τὴν μίαν ἡμίσειαν μνᾶν.

Ægyptians made uſe of the ſame word, to expreſs a certain Coin. The following Tables are founded upon the *Rabbinical* Suppoſition, and that of Dr. *Cumberland* late Biſhop of *Peterborough*, *viz.* that the weight of a *Shekel* is half a *Roman* or half an Ounce *Averdupois*, which according to Dr. *Cumberland* is 219 Grains, *Troy* weight, according to the ſuppoſition in the Tables 218 4/7, which perhaps may be a miſtake; but as I ſaid before, the proportion of the *Averdupois* Ounce to the *Troy* Ounce, that was given me as a true one, was 51 to 56. The difference is very inconſiderable, being only 3/7 of a Grain in half an Ounce.

This value of the *Shekel* has been collected from the experiment of weighing ſeveral remaining *Shekels*. From the teſtimony of the later Ancients the Biſhop of *Peterborough* quotes that of St. *Jerome* on the 4th *Chapter* of *Ezekiel*, who affirms the *Shekel* to contain four *Drachms* of the *Latin* Ounce: and is agreeable to the concurrent teſtimonies of all the *Rabbins*. According to this weight and the value of Silver, ſuppos'd to be in the Tables at 5 Shillings the Ounce, the *Shekel* muſt be in *Engliſh* Money 2 *s.* 3 8/25 *d.* for which fraction 8/25 of a Penny, I have put 1/3 for ſome conveniency in computation, and approaching nearer to the real value of our Silver: The difference being leſs than 1/5 of a Farthing.

But becauſe I will conceal nothing, that may tend to the information of my Reader, I muſt acquaint him that the learned Biſhop of *Bath* and *Wells* is of opinion, "that the *Talmudical* " *Jews* have deliver'd to us a very different value of the old *Hebrew* Coins, from what ſome great Men of their own nation, " *Philo* and *Joſephus*, had formerly given us; and that for example, when theſe had rated a *Shekel* to us at near 272 of our " Grains, and a quarter *Shekel*, at 68, thoſe have lower'd the *Shekel* to 219, and brought down the *Zuza* to an equality with " the *Roman Drachma*:" and what the Biſhop ſaith is indeed true. [a] For *Joſephus* reckons the half *Shekel* or what they call the *Siclus profanus*, as a *Didrachm*, and puts for 5000 ſuch *Shekels* μυρίας δραχμάς:

[a] Joſeph. lib. 3. ὁ δὲ σίκλος νόμισμα Ἑβραίων ὢν Ἀττικὰς δέχεται δραχμὰς τέσσαρας. *this is ſaid of the* Siclus ſacer.

δραχμάς: And the sacred *Shekel* he reckons as a *Tetradrachm*; [b] and so it is in *Hesychius*. *Philo* likewise, who lived in the time of *Claudius*, positively affirms that the *Shekel* of the *Hebrews* was equal to the *Tetradrachm* of the *Athenians*. And this value of the *Shekel* is the same which is given it by the LXX *Interpreters*. They render a *Shekel* of 20 *Gerahs* by *Didrachmum* the *Alexandrian* Coin, which was equal to the *Attick Tetradrachm*.

The Bishop supposes that St. *Jerome* and *Epiphanius*, who are quoted against this opinion, when they mention the proportion of the *Jewish* weights to the *Libra* and Ounce, mean an *Attick* Ounce and an *Attick* Pound greater than the *Roman*. The Reader will easily perceive that according to this way of reckoning, the *Shekel* must have weighed 4 x 67 or 4 x 68,4 Grains: which as a Coin would make, 2 *s*. 9 ½ *d*, or 2 *s*. 10 ½ *d*.

The Type and Inscription of the *Shekel* was in *Hebrew* letters, on one Side *SEKEL BISRAEL*, (that is, a *Shekel* in *Israel*) with an Altar or Chalice smoaking Incense: on the reverse *HEKADOSCH IERUSALAIM* (that is, holy *Jerusalem*) with *Aaron*'s Rod budding.

[c] The half *Shekel* was called *Beka*, from the verb *Baka*, which signifies divided in two parts. It was the same with the *Didrachmum*, or what they call the *Siclus profanus*.

The Pole-Tax of the *Jews* under the Government of the *Romans* was this *Didrachm*.

The *Zuza* was the fourth part of a *Shekel*, for so the fourth part of a *Shekel* 1 *Samuel* ix. is translated by the *Chaldee* Paraphraist. This is not mention'd in the Tables, because not so common.

[d] *Gerah* was the twentieth part of a *Shekel*, and is understood to be the same with *Agorah* mention'd 1 *Samuel* ii. 36. The LXX interpret *Gerah* an *Obolus*, which is the small Coin that comes the nearest to it; but a *Gerah* being $\frac{1}{20}$ of a *Tetradrachm*, must have

[b] Hesychius σίκλος τετράδραχμον ἀττικόν. [c] Gen. 24. & Exod. 38. [d] Exodus 30, & 13. Levit. 27. Numb. 3. 18. Ezekiel 45.

have been $\frac{4}{7}$ of a *Drachm*, of which the *Obolus* is the $\frac{1}{6}$. Tho' Bishop *Cumberland* saith that there are *Attick Oboli* still remaining of 1095 Grains mention'd by Mr. *Greaves*, which prove that the weight of the *Shekel* hath been rightly stated 219 Grains.

The greater sums of Money and Weights among the *Hebrews* were a *Talent* and *Maneh*. *A Talent* was 3000 *Shekels*, as appears by *Exod.* xxxviii. 25, 26. which runs thus. *And the Silver of them that were numbred of the congregation, was an hundred Talents, and a thousand seven hundred and threescore and fifteen Shekels, after the Shekel of the Sanctuary. A Bekah for every man, that is half a Shekel, after the Shekel of the Sanctuary, for every one that went to be numbred from twenty years old and upward, for six hundred thousand, and three thousand and five hundred and fifty men.* So 603550 half *Shekels* or 301775 *Shekels* made 100 *Talents* and 1775 *Shekels* over: which substracted from the former sum leaves 300000 equal to 100 *Talents*, or 3000 *Shekels* equal to one Talent.

In the computation of the *Maneh*, Dr. *Cumberland* commits a mistake: for the *Maneh* (saith he) " being set for a mere weight " without respect to Coinage, contain'd just 100 *Shekels*, this " seems clear by the comparing of 1 *Kings* vii. 17. (where it is " said that in each of *Solomon*'s Shields there were three *Manehs*, " or, as we translate it, pounds of Gold) with 2 *Chron.* ix. 16. " where our Translation affirms that 3000 *Shekels* of Gold went " to one of those Shields. And indeed tho' the word *Shekel* be " not in the Original exprest, yet it must be understood; because " *Ezekiel* assures us, *Ezek.* xlv. 12. that by the *Shekel* the *Maneh* " was adjusted. And *Pollux lib. 9 cap. 6.* affirms, that when we " say a Golden One, we understand a στατὴρ; as when we say a " Silver piece, we mean a *Shekel*." According to this rate of the *Maneh*, a *Talent* would contain 5000 *Shekels*, whereas it is acknowledged by all to contain only 3000. It is plain that the nummary *Maneh* consisted only of 60 *Shekels*, for *Ezekiel Chap.* xlv. 12. reckons 20, 25, and 15 *Shekels* to the *Maneh*, which make

make the number 60. The ponderal *Maneh* conſiſted only of 50 *Shekels.* The *Talent* was the ſame in both, conſiſting of 3000 *Shekels.*

There is another paſſage concerning the weight of *Abſalom's* hair, which is ſaid to weigh 200 *Shekels,* 2 *Sam.* xiv. 26. This *Joſephus* calls 5 *Minæ,* which would make the *Mina* to conſiſt of 40 *Shekels,* and hath made ſome imagine there were *Sicli Tridrachmi.* For the clearing of this matter I refer the Reader to the learned Biſhop of *Bath* and *Wells,* in his ingenious enquiry into the State of *ancient Weights and Meaſures, pag.* 196. the whole being too long to inſert here.

The *Rabbins* affirm that the *Jewiſh* Weights and Coins received a conſiderable alteration after the *Babyloniſh* Captivity, of which there cannot be a more diſtinct Account than what is given by the above-mention'd learned Prelate. "The Standard of their Money "under the ſecond Temple was $\frac{6}{5}$ of that under the firſt. Theſe "new pieces of Money went alſo under different names, than thoſe "had with which they nearly correſponded. For the $\frac{6}{5}$ of the "old *Shekel* was ſtyled a *Sela*; and the $\frac{6}{5}$ of a half *Shekel* was cal-"ed a *Tobba*; and the $\frac{6}{5}$ of a quarter *Shekel,* a *Deinar*; and the "*Gera,* which was the 20 of an old *Shekel,* and was now to be "the 24 of the new *Sela,* tho' it remained in the account, yet "took a new name; and was termed a *Mea.* Theſe *Chaldaick* "or *Syriack* appellations (as all are ſo, excepting the *Deinar*) theſe "new Coins are preſumed to have brought from *Babylon*: "and another Coin was alſo added thence to the old number; "which was a double *Sela,* and $\frac{6}{5}$ of a double *Shekel,* and called "a *Darcon.* All theſe pieces of money down to the *Gera*; or as "they call it *Mea,* which is they ſay the loweſt Silver piece; and "alſo the minuter Subdiviſions of the weight of that Species into "Grains, and *Peruta's*; are with the relation they bear to one a-"nother repreſented in the Table ſubjoined.

[illegible] PUBLIC [illegible]

Peruta								
2	Granum							
32	16	Mea						
192	96	6	Deinar					
384	192	12	2	Tobba				
768	384	24	4	2	Sela			
1532	768	48	8	4	2	Darcon		
38400	19200	1200	200	100	50	25	Maneh *or* Mani	
2304000	1152000	72000	12000	6000	3000	1500	60	Kibbera

The *Meah* is believed to be a *Chaldæan* word. The *Chaldæan Paraphrast* renders *Gerah* (*Exod.* xxx. *Ezek.* xlv.) by *Meah*, as the LXX does by *Obolus*. The *Sela* consisting of 24 *Meahs*, and the *Shekel* of 20 *Gerahs*, the *Deinar* of 6, and the quarter *Shekel* of 5, will make the *Shekel* bigger by one sixth part. The learned Prelate abovemention'd is of opinion that this increase of the *Jewish* money after the *Babylonish* captivity, is but an invention of the *Rabbins*, and that *Josephus* and *Philo*, who still make the *Jewish* "*Shekel* equal to the *Attick Tetradrachm*, must be allowed to take "place before the Compiler of the *Misna*, their authentick tradi-"tion, if wrote as early as they would have it, and in the time "of *Adrian*; and as for the *Talmud* or Comments on that *Misna*, "they are undoubtedly late compositions of hearsays, and taken "up at a great distance from the times they speak of.

He has given a most ingenious reason for this invention: which I will set down in his own words. "For when upon the destru-"ction of the Temple by *Titus*, the *Jews* were constrained to pay "the half *Shekel* yearly due to That, into the *Roman* Treasury; it "was then their interest to bring this offering to a low Estimate, "at some favourable opportunity: And this they might effect, to "the diminution of it to a sixth part, if they could persuade one "of the mild Emperors after *Hadrian*, who had not been provoked "by them, *Alexander* for example, that such *Shekels* as had "been coined by their late Princes, such as they now shew to per-"suade us into that opinion, were the old ones in which that

"duty was to be paid by their Law. And such a persuasion "might be the more acceptable to the *Romans*; because it gave "their Standard so high an Antiquity, and made it as old as *Mo-* "*ses*. For such a notion from the *Jews* would have been as flat- "tering now to their Masters, as the Coinage had been before: "And they might by it claim some kindred with them, as their "Ancestors had prepared for it before; when in their exigence "they challenged kindred with the *Spartans*; who, as *Dionysius Ha-* "*licarnassens* tells us, had a better title to that ambitious pretence.

He proposes the *Phœnician* money as a *medium* to attain the knowledge of the *Hebrew*, for several very weighty considerations; particularly the *Tyrian Talent* is said by ancient Authors to be equal to the *Attick*.

There is mention made in the Scriptures of a *Kesitah* or Lamb, *Gen.* xxxiii. 19. *And he bought a parcel of a field, where he had spread his Tent, at the hand of the Children of Hamor Shechem's father, for an hundred pieces of money*, (*Kesitoth*, *which signifies Lambs*. *Every one gave him a piece of money*, *Job* xlii. 11. This piece of Money was so called from the Stamp of a Lamb.

When the word *Keseph* is put with a number in the Old *Testament*, and rendered in our translation pieces of Money, it is commonly understood of *Shekels*.

In the new *Testament* the Coins commonly mention'd are the *Roman Denarius*, the *As*, the *Assarium*, *Matth.* x. 29. determin'd by *Cleopatra* to be ½ of the *As*: *Quadrans*, ¼ of an *As*. *Matth.* v. 26. and the half of the *Quadrans* called λεπτὸν, which we translate a *Mite*.

CHAP.

CHAP. VI.

Of the Proportion of the Value of Gold to Silver amongst the Ancients, and of their Gold Coins.

THE lowest Rate of Gold we find mention'd amongst the *Romans*, came from an accidental cause. The vast quantity of Gold which *Julius Cesar* had got by plundering Cities and Temples (which, as *Suetonius* saith, he destroy'd from a motive of Covetousness, rather than Revenge) made it such a drug, that he exchanged a Pound of Gold for 3000 *Nummi*: In 3000 *Nummi* there are 750 *Denarii*, and in a pound 84 *Denarii*; therefore according to this Reckoning, the proportion of the value of Gold to that of Silver is as 750 to 84, or as 125 to 14, which is nearly as 9 to 1. Some Authors from this passage of *Suetonius* infer that the proportion was 7 ½ to 1; but this mistake ariseth from their considering the *Roman* Ounce as consisting of 8 *Denarii* as the *Attick*, whereas it consisted but of seven.

The most common, constant, and stated rate of Gold to Silver was the *Decuple*, which [b] *Julius Pollux* confirms from *Menander* the Poet, calling a *Talent* of Gold δεκατάλαντον.

[c] Thus *Hesychius* from *Polemarchus*; *An Aureus is 2 Drachms, and a Drachm of Gold is worth 10 Drachms of Silver.* [d] The same proportion is assign'd by *Livy*, it being permitted to the *Ætolians* to pay one *Talent* of Gold for 10 of Silver. The same proportion is allowed by [e] *Suidas*.

The

[a] Suet. in Cæsare cap. 54. In Gallia fana templaque Deum, donis referta expilavit, urbes diruit, sæpius ob prædam quam ob delictum; unde factum est, ut auro abundaret, ternisque millibus nummum in libras promercale per Italiam provinciasque divenderet. [b] Lib. 9. [c] ὁ χρυσοῦς παρὰ τοῖς Ἀττικοῖς πολέμαρχος ἐστι δύναται δραχμὰς δύο, ἡ δὲ χρυσῆ δραχμὴ νομίσματος ἀργυροῦ δραχμὰς δέκα. [d] Livius lib. 8. Dec. 4. Si pro argento aurum dare mallent, dare convenit, dum pro argenteis decem aureus unus valeret. [e] δραχμὴ δὲ ἑκάστη νομίσματος εἰς ἀργυρίου λόγον δραχμὰς δέκα.

The *duodecuple* proportion is mention'd by *Plato* in *Hipparcho,* who makes Silver to Gold δωδεκαςάσιον.

Stanislaus Grsepsius a learned *Polander* endeavours to establish the *duodecuple* proportion among the *Jews,* by comparing some passages of Scripture together, and with others in *Josephus.* But I believe they will hardly prove his point. The proportion of the value of those Metals amongst the *Jews,* was the same as amongst their neighbour Nations.

There is another proportion assign'd for the Classical age, *viz.* that of 12 ½ to 1: Which they say is plain, because the *Roman Aureus,* supposing it equal to the *Attick Didrachm,* was exchang'd for 25 *Denarii.* This indeed is evident; for *centum Aurei,* the fee of Advocates in *Ulpian,* is express'd by *Tacitus, dena Sestertia.* That is 100 *Aurei* are equal to 10000 *Nummi;* or 1 *Aureus* equal to 100 *Nummi:* from which it follows that 2 *Drachms* of Gold were worth 25 in Silver, 100 *Nummi* being 25 *Drachmæ* or *Denarii.* And the *Centeni Nummi* of [f] *Tacitus* is called by [g] *Suetonius* an *Aureus,* both of them speaking of the Liberality of *Otho* to *Galba's* Guards.

Dion affirms directly that an *Aureus* was worth 25 *Drachmæ,* which *Xiphilinus* reads 25 *Denarii.*

But here a difficulty ariseth; for it was as certainly known that the *Attick Aurei* changed at the rate of 20 *Drachmæ* of Silver for 1 of Gold. *Zonaras* saith in express Terms, that amongst the *Romans* an *Aureus* was exchanged for 25 *Drachmæ,* amongst the *Athenians* only for 20. If the Coins were of the same fineness and weight, this would make a great difference in the value of the two Mettals in two Cities, which were in constant Commerce with one another. This is a direct impossibility, because the Silver would be exported from the one place, and the Gold from the other, until the Balance was justly settled. There are but two ways of solving this difficulty, by supposing the *Roman Aureus* finer, or heavier

[f] Tacitus de Othone loquens, ait, Cohorti excubias agenti viritim centenos nummos divi-dit. [g] Sueton. in Othone. Nullo igitur officii, aut ambitionis genere omisso, quoties Cœna Principem acciperet, aureos excubanti cohorti viritim dividebat.

vier than the *Attick*. *G. Agricola* and ſome others take the former, and *Gronovius* I think for very good reaſon the latter.

Agricola reaſons thus: *Crates* a Comick *Athenian* Poet, makes the *Semiſexta* of an *Aureus* equal to 8 *Oboli*, therefore 16 *Oboli* were equal to a *Sexta*, but 6 *Oboli* were equal to a *Drachm*; Therefore 6 times 16, making 96 *Oboli*, or 16 Silver *Drachmæ*, were equal to the *Aureus* of 2 *Drachms*. Conſequently there muſt have been one 5th part Braſs in it; for if it had been of pure Gold like the *Darick*, it would have been exchang'd for 20 Silver *Drachms*. But the misfortune of this Argument is, that the *Athenian Didrachm* and *Darick Stater* were commonly exchang'd for one another: and the *Athenians* had the reputation of having the fineſt and faireſt Coins in the world. κάλλιςα πάντων, &c. *Ariſtophanes*.

They urge likewiſe for this opinion of the proportion of Gold to Silver, being 12 ½ to 1, a paſſage of *Pliny*, where he ſaith the *Byſſin*, a ſort of ſubſtance which the Ladies ſpun into thread, was exchanged like Gold for 4 *Denarii* the ſcruple. That makes the *Didrachm* 24 *Denarii*. But this paſſage is nothing to the purpoſe, for if *Drachma* here be meant of the *Attick Drachm* of which the *Aureus* made two, it will make the proportion of 12 to 1. If it be underſtood of the *Roman Drachm* one 8th of their Ounce, it will make it 13,7 to 1, neither of which is to the purpoſe. Therefore in all appearance *Pliny* put a round number near the truth rather than a fraction. For which reaſon *Gronovius* believes that the *Decuple* proportion ſubſiſted, but that the *Roman Aurei* were firſt of a greater weight, than the *Athenian Didrachmus*, which he thinks is juſtified by the weights of ſeveral ſtill extant. The *Roman Aurei*, which were firſt coin'd of 7 ½ Scruples came by degrees in *Conſtantine*'s time to be only 4 *Scruples*, called *Solidi*, and ſometimes *Sextulæ*.

A paſſage in the *Code, de Argenti pretio*, runs thus, *Jubemus ut pro Argenti ſumma quam quis Theſauris fuerit illaturus, inferendi Auri accipiat facultatem, ita ut pro ſingulis libris Argenti, quinos ſolidos inferat*. Suppoſing the *Solidi* to be 4 Scruples, 20 Scruples of Gold

Gold were changed for 288 *Scruples* of Silver, this makes the proportion of Gold to Silver as 14 $\frac{2}{5}$ to 1.

[a] There were of *Grecian* Gold Coins, the *Stater Aureus Atticus*, which was a *Didrachm*, the weight of two *Drachms*.

Also some *Tetradrachms* called Γλαῦκες λαυρεωτικαὶ, *noctuæ laureoticæ*, from the Stamp of an *Owl* upon them.

There was likewise the *Stater Aureus Philippæus*, *Didrachms* struck by *Philip* of *Macedon*. *Horace* terms them in short, *Philippos*.

Rettulit acceptos regale nomisma Philippos.

Those according to their weight and the *Decuple* proportion of Gold to Silver, which then obtain'd, were worth 20 *Drachms* or *Denarii*, or 12 *s.* 11 *d.* It was observ'd before that the *Roman Aurei* falsly suppos'd to be of the same weight, were worth 25 *Denarii* or 16 *s.* 1 $\frac{3}{4}$ *d.*

Stater Alexandrinus, some *Didrachms*, some *Tridrachms*.

Stater Aureus Prusii King of *Bithynia*.

[b] *Stater Cyzicenicus*, exchanged for 28 *Attick Drachms*, *i. e.* 18 *s.* 1 *d.* Some make the *Stater Alexandrinus* and the *Stater Philippicus* of the same value with the *Stater Cyzicenicus*: and accordingly they are stated in the Tables.

The *Cyzicenian Staters* were stampt with the figure of a *Cybele*.

There is mention made of a *Stater* of the *Phocaitæ*, by *Thucydides*. *Phocæa* was a City in *Ionia*.

Δαρεικὸς or Δαρεικὸς, [c] first they were coin'd *Didrachms*, but afterwards they were coin'd *Tetradrachms*: and *Josephus* makes them equal to the *Jewish Shekel*.

Julius Pollux makes a *Stater* worth a *Mina*, which must be understood of one of 8 *Drachms*; according to which proportion the *Tetradrachm* was worth 50 *Attick Drachms*. This proportion is observed in the Tables, which I have not chang'd, being according to the *Roman* way of reckoning, 25 *Denarii* for the

[a] Pollux lib. 4. cap. 24. [b] Demosthenes. ὁ δὲ κυζικηνὸς στατὴρ ἠδύνατο ἐκεῖ καὶ ὀκτὼ δραχμὰς ἀττικάς. [c] Suidas.

the *Aureus*: tho' the *decuple* proportion of Gold to Silver obtain'd and was the most common way of computing.

The *Hebrew Aureus* was sometimes *drachmal*, or $\frac{1}{4}$; sometimes $\frac{1}{2}$ of the *Shekel* or Silver Coin. It was called *Darckmon*. We have observ'd before that *Josephus* differs from the *Rabbins* in the account of the *Jewish* Weights and Measures: according to his reckoning, the *Shekel* is equal to the *Attick Tetradrachm*; according to the *Rabbinical* account, it is equal to four *Roman Drachms*, or $\frac{1}{2}$ of the *Roman* Ounce. Those two ways of reckoning will make an 8th part of difference in the value of their Gold as well as Silver Coins.

The *Pondo* or *Libra Auri* amongst the *Romans*, and the *Mna* amongst the *Greeks*, when it is nummary, or put for a Sum of money, always signifies 100 *Drachmæ*.

The general supposition of Authors is, that there was a 50th part of Alloy in the Gold Coins of the Ancients.

I have estimated the Gold Coins according to the proportion of Gold to Silver, which then obtain'd. They would be of more value now amongst us according to their weight and fineness.

CHAP. VII.

Of ROMAN, GREEK, *and* ARABIAN *Weights.*

ROMAN *Weights.*

THE *Romans* used the *Libra*, which they divided into 12 *Unciæ* or Ounces, and the later *Greeks* in imitation of them had their *Litra*, which they divided after the same manner. This is plain from abundance of Authors, *Volusius Metianus*, *Galen*, &c.

They

They divided their Ounce into 3 *Duellæ*, and likewise into 6 *Sextulæ*. *Rhemnius Fannius*,

> —— *Drachmæ scrupulum si adjecero, fiet*
> *Sextula quæ fertur, nam sex his uncia constat.*
> *Sextula cum dupla est veteres dixere Duellam.*
> *Duella Obolos habet sedecim, scrupula octo.*

Another division of their Ounce was into 4 *Sicilici*. *Sicilicus* so called according to *Festus Pompeius*, *quod semiunciam in duas partes secet*. *Rhem. Fannius*,

> *Drachmam si gemines, aderit, quem dicier audis*
> *Sicilicus.*

Sextula among the *Greeks* was called ἑξάγιον and corruptly ϛάγιον: ἡ οὐγία ἔχει ϛάγια ἕξ. *Interpres Nicandri.*

They likewise divided their Ounce into 7 *Denarii*. *Corn. Celsus lib.* 5. *cap.* 17. *Sed antea scire volo in uncia pondus Denariorum septem esse.* *Plin. lib.* 33. *cap.* 9. speaking of the *Denarius*, *alii de pondere subtrahunt, cum sit justum octoginta quatuor e libris signari.* 84 in 12 Ounces is just 7 in an Ounce.

Then they divided it into 8 *Drachms*. *Fannius*, *Galenus*, *Dioscorides*, *Plinius*, &c.

The 12th part of an Ounce they called *dimidia Sextula*, it was likewise divided into 24 *Scrupula* or rather *Scriptula*. The *Greeks* called them γράμματα. *Fannius*,

> *Semioboli duplum est Obolus, quem pondere duplo*
> *Gramma vocant, Scripulum nostri dixere priores.*

The *Denarius* was divided in two *Victoriati*, not only as a piece of money, but as a weight. *Plin. lib.* 21. *cap.* 24. & *lib.* 24. *cap.* 2, 5, 6. and *Scribonius Largus* in many places.

The

The *Denarius* was also divided into 6 *Sextantes, Cor. Celsus, lib.* 5. *cap.* 7. 17. in imitation of the 6 *Oboli* of the *Drachma*, according to which division a *Sextans* would contain in *English Troy* weight about 6 ½ Grains.

Cornelius Celsus, lib. 4. *cap.* 4. mentions the *Quadrans Denarii. Aut sulphuris ignem non experti pondo* x *& quadrans.* And likewise the *Triens Denarii lib.* 4. *Salis Ammoniaci, P.* 3. *hoc est, Pondo triens.*

The value of the *Roman* Pound is determin'd as in the Tables from the value of the *Denarius, viz.* 5245 ½ *Troy* Grains; according to the common reckoning, it is 5256; this small difference, as I have said before, proceeds from assuming the *Averdupois* Ounce to the *Troy* Ounce precisely as 51 to 56. The rest of the parts of the pound follow from this, as in the Tables.

GREEK *Weights*.

THE *Talent* was the greatest Weight as well as the greatest Sum of money among the *Greeks*. And this ponderal *Talent* was divided, as the nummary *Talent*, into 60 *Minæ*, and every *Mina* into 100 *Drachmæ*. The Coin was so call'd, because it weighed a *Drachma*. *Rhemnius Fannius*,

> *In Scrupulos ternos Drachmam, quo pondere doctis*
> *Argenti facilis signatur nummus Athenis.*

A *Drachma* was ⅛ of the Ounce, and $\frac{1}{100}$ part of a *Mina*; tho' perhaps this way of reckoning by Ounces and Drachms was borrowed by the *Greeks* from the *Romans*; for the old Division of the *Drachma* was into 6 *Oboli*. *Suidas* δραχμὰ ἐξ ὀβολῶν. The *Didrachmum, Hemidrachmum,* &c. express'd Weights as well as Coins. The *Greeks* used the expression τρίτον ἡμίδραχμον, to signify 2 ½ *Drachms*, as well as τρίτον ἡμιτάλαντον.

An *Obolus* contain'd 6 χαλκοὶ, or as the *Latins* call them *Æreoli. Suidas ex Diodoro*, ὀβολὸς παρὰ Ἀθηναίοις ἓξ ἐςὶ χαλκῶν. An *Obolus* among the *Athenians* consists of 6 *Æreoli.* The *Greeks* used the word διώβολος; the *Latins* translated it not *diobolus*, but *duos Obolos. Plin. lib.* 20. *Mox in Aceto pondere Obolorum duum.* And almost every where so.

An ἡμιώβολον, or *Semiobolus*, contains one *Siliqua* and one half; and 4 *Æreoli* according to *Cleopatra*, but 3 only according to *Diodorus apud Suidam.*

Χαλκοῦς, or *Æreolus*, contain'd the 6th part of an *Obolus*: and 7 λεπτὰ, according to *Suidas.* ὁ δὲ χαλκοῦς λεπτῶν ἑπτά. that is, contained 7 λεπτά.

Λεπτὸν was the 7th part of an *Æreolus*, and was called by the *Latins Minuta*, and sometimes *Minutia*, and is not divided into any lesser Weight.

The *Greeks* used the οὐγγία and divided it as the *Romans* did: when they began to use that Measure, is somewhat uncertain. I did not think there was any particular Table necessary for that division of *Grecian* Weights. They us'd the κεράτιον, in *latin Siliqua*, which was the 18th part of a *Drachma*, as appears from *Hesychius.*

The *Medical* Weights, were the *Mina*, of 16 *Roman* Ounces, as appears by *Dioscorides* and *Galen*, and *Cleopatra* in *Cosmeticis*, who tells you that *Mina* as a Weight contains 16 Ounces, 128 *Drachms*, 384 *Scripula*, 768 *Oboli*, 1052 *Lupini*, 2304 *Siliquæ*, 6144 *Æreoli.* But when *Celsus* and *Scribonius Largus* make use of a *Denarius* of about 62 $\frac{2}{7}$ Grains, the *Drachma* being supposed equal to that, 100 such *Drachmæ* must have made a *Mina* of 6222 $\frac{2}{7}$ Grains, whereas a *Mina* of 16 Ounces is about 7000 *Troy* Grains, or our *Averdupois* pound. The reason of this difference is assign'd before.

The Physicians likewise made use of the *Litra* of 96 *Drachms.* The οὐγγία or *uncia* being divided as usually. This last way of reckoning was common after *Galen*'s time. The κεράτιον or *Siliqua*, mention'd

mention'd before, was likewiſe a common weight amongſt the Phyſicians: and the σιτάϱιον or Grain, ¼ of the *Siliqua*.

There were among the *Greeks*, *Hippoiatrical*, or what we might tranſlate in *Engliſh*, *Farriers* weights: or, as they were called by ſome, *Mulomedici*, *Mule Doctors*. They are mention'd by an uncertain *Greek* Author. The *Mina Hippoiatrica* contain'd 15 Ounces, ὁλκὰς 112 ½, the *Litra* contain'd 90 *Drachms*, the Ounce 7 ½ *Drachms*; the *Drachm* 3 *Scruples* or 6 *Oboli*.

The *Romans* dividing their *Ounce* into 7 *Denarii*, and likewiſe into 8 *Drachms*, the *Greeks* of later ages dividing likewiſe their *Ounce* into 8 *Drachms*, and the *Roman Denarius* being ſuppos'd equal to the *Greek Drachma*, have occaſion'd great confuſion in the expreſſions of Authors, about the weights of both Nations, moſt of them aſſerting that the *Attick Tetradrachm* was ½ of an *Ounce*, and the *Didrachm* ¼, *&c.* This difficulty has been ſtill encreas'd by the Diminution of the weight of the Coins of both Nations. Beſides ſome of the antient *Attick Drachms* weighing 67 Grains, and the *Denarii* only 62, occaſion'd a new difficulty how to preſerve the equality that is ſuppoſed betwixt theſe two Coins.

The learned Biſhop *Hooper* ſuppoſes that "the *Attick Drachma* "might change as a Coin, and the Weight continue the ſame: "that when the *Athenians*, in imitation of the *Romans*, divided their "Ounce into 8 parts under the name of *Drachmas*, for the eaſier "management of this account they divided not their 100 *Drachma's* into 12 Ounces, but 100 lacking 4; by which means, in "perfect conformity to the old *Roman* diviſion, and to the latter "of the Ounce into eights, they had a *Litra* of their own, wanting but little of their *Mina*, and conſiſting of 96 of their own "*Drachma's*, ſuch as were not 96 of the *Roman*, but *Attick* "Pound.

It is evident there was an ancient *Attick Mina* of 16 *Roman* Ounces. All Authors, and particularly the fragment printed with *Galen* of the Compoſition of *Medicines*, agree in this. It is affirm'd, in *Cap.* 2. of the fragment, that the *Attick* and *Ægyptian Mina* contain

 16 Ounces.

16 Ounces. *Cleopatra cap.* 7. ſaith a *Mina* weighs 16 Ounces. But in another place of the ſame Author it is ſaid, an *Attick Mina* has 12 Ounces, (the *Semis* is here omitted) and another *Mina* has 16 Ounces. When they ſpeak of Ounces, they mean the *Roman*, which is our *Averdupois* Ounce. By which it ſeems there are two different *Minæ* deſcrib'd, one of 12 $\frac{1}{2}$ Ounces, which I ſuppoſe was the latter, and another of 16 Ounces the more antient. So that the moſt ancient *Mina Attica* was exactly our *Averdupois* Pound. This agrees with the *Talents* beforemention'd, in which *Antiochus* was order'd to pay his Tribute. *Livy* ſaith that each *Talent* was to conſiſt of 80 *Roman* Pounds, that is of 960 *Roman* Ounces, which are exactly the number of Ounces in a *Talent* of 60 *Minæ*, when each *Mina* contains 16 Ounces.

That the *Attick Drachm* fell from 70 Grains to about 62 $\frac{22}{45}$ is as plain, becauſe it was equal to the *Roman Denarius* of that weight. Therefore I thought fit to adjuſt likewiſe the Weights of that time according to this Standard: for undoubtedly there were ſuch weights which the Phyſicians uſed, who, tho' they might reckon according to the weight of the Money, they did not weigh their Drugs with pieces of Money. And it is plain likewiſe from their Preſcriptions that they often follow'd *Hippocrates* in his Doſes, and no queſtion adjuſted their weights to thoſe which he uſed. Therefore I have fram'd one Table of the elder *Greek* weigthts with a *Drachm* of 70 *Troy* Grains, and a *Mina* equal to our *Averdupois* Pound; and two other Tables of later *Greek* and *Roman* Weights blended together, one for the leſſer, and another for the greater, which is proper for thoſe times when both Nations reckon'd after the ſame manner: The *Greeks* making uſe of the *Roman* λίτρα and its Subdiviſions, which I ſuppoſe all this while did not change.

This is the ſuppoſition of moſt Authors who have wrote upon the Subject; and if it be an Error, it is a very general one. And I may at leaſt be forgiven for underſtanding them according to the plain ſenſe of their words, as they are printed.

Accipe

[illegible library stamp]

Accipe prætereà parvo quam nomine Graii
Mnam vocitant, nostrique Minam dixère priores.
Centum hæ sunt Drachmæ; quod si decerpseris illis
Quatuor, efficies hanc nostram denique Libram,
Attica quæ fiet, si quartam dempseris hinc Mna.

Rhemn. Fannius.

Cleopatra Cap. 7. (before cited) speaks of two different *Minæ*, the first of 16 Ounces; and afterwards adds *Mina Attica habet* ℥*xii. semis, i. e.* has 12 ½ Ounces; which I think must be understood of the same denomination with the former, *viz. Roman* Ounces. And again, *cap.* 8. The *Attick Mina* has 12 Ounces (the *Semis* must certainly have been forgot.) There is another, saith he, of 16 Ounces, which is the old *Mina* of all mention'd before.

Dioscorides mentions only that of 16 Ounces; and tho' it is mentioned by the *Physicians*, it is not what they prescribed by, but perhaps like our *Averdupois* weight, what their gross drugs were at first sold and bought by.

I am far from being positive in this *hypothesis*; for I think that of the learned Bishop so often mention'd, *viz.* That the *Athenians* had a *Libra* of their own, consisting of 96 of their own *Drachms*, is supported with very strong arguments; and to confirm it still more, that learned Prelate has restored some of the Readings of the Authors with great sagacity.

ARABIAN *Weights.*

THE *Arabian* Weights us'd by their Physicians, *Serapio, Rhasis* and *Avicenna*, are a mixture of the *Greek* and *Roman* Weights, and derived from them. Their *Manes* is a corruption of the *Hebrew Maneh* or the *Greek Mina*: there were two of them,

one of twenty Ounces, and another of ſixteen. I refer the Reader to the Table for the beſt account that is given of them by their own Authors. But I truſt more to that of the learned Biſhop of *Bath* and *Wells*.

The *Ratel* or *Litra*, (called *Rotulus* in the Tables,) uſed all over *Ægypt*, and the neighbouring Eaſtern Countries, is as the Biſhop obſerves "of different quantities in ſeveral places, and in the ſame "place for ſeveral goods; but always divided into 12 parts, "which are their Ounces. Theſe Ounces therefore are different; "and in this that ſome conſiſt of more, ſome of fewer little "Weights, which they call *Dirhems*, which are always the ſame.

This conſtant univerſal weight a *Dirhem* is divided into 12 *Carats*, and each *Carat* into 4 Grains; the whole number of Grains in a *Dirhem* being 48. This account the Biſhop takes from *Golius, Lex. Arab.* Theſe grains, according to Mr. *Greaves*'s account, "are almoſt the ſame with ours, 48 of our Grains exceeding 48 "of theirs, or their *Dirhem*, only by 0,18 parts of a Grain. Con- "ſequently our Pennyweight exceeds their half *Dirhem*, by 0,09 (not "the tenth of a ſingle Grain.) And ſo our *Troy* Ounce = 20 penny- "weights, is not two whole grains more than 10 of their *Dirhems* = "480 of their Grains; and therefore may very well paſs for one "of thoſe various Ounces of *Ægypt*, and which conſiſted of 10 "*Dirhems*.

"Of the ſeveral Ounces, that of 12 *Dirhems* is eſpecially to be "mark'd. It is ſpecified by *Golius* as the Ounce by which things "of leſs bulk and greater value, particularly *Medicinal* Drugs, are "uſually weighed: And this is the Ounce or $\frac{1}{12}$ of that *Ratel* of "*Cairo* which Mr. *Greaves*, by experimental obſervation, gives us "at 6886 of our *Troy* Grains, and is = 12 x 12 x 48 = 6912 of theirs, "as the Ounce accordingly is = 573,8 of our Grains, and 576 "of theirs.

"And here it is apparent, that their number of Grains to the "*Cairo* Ounce 576, is the ſame number of Grains which the *Romans*, and *Spaniards* and *French* reckon to their Ounce, tho'

"much

"much leſs. And that the number 6912 in the *Cairo Ratel*, "is the ſame with that of Grains in the *Roman* Pound, and in "ſuch a *Spaniſh* and *French* Pound, as is counted by 12 Ounces.

"It is alſo obſervable, that the *Cairo Ratel* differs ſo little from "the *Spaniſh*, and our *Averdupois* Pound, which are of 16 "Ounces, and from the *Roman Mina Medicorum* which reckons "as many; that it may well be eſteem'd as the Standard, from "whence the *European* were deſign'd to be taken.

"And we ſhall leſs wonder at all theſe particulars, as that our "*Troy* Grains are found equal to theirs, and our Pennyweight "(our *Silverling*) to their half *Dirhem*; or that the Diviſion of "the *European* Ounce was fram'd by that of *Cairo*; or that thoſe Pounds are from the *Ratel* of that place: when we conſider that *Cairo* or *Mem*-"*phis*, in whoſe ſtead it ſucceeded, was in the heart of *Ægypt*; and in "the way from the *Red Sea* (by which all the *Arabian* and *Indian* "Goods were brought, 'till about 300 years ago) to *Alexandria*; "that *Alexandria*, until then, had been the great Mart for all the "Countries in the *Weſt*: And that the *Saracens* were not only "near and powerful neighbours to them, but drove a flouriſhing "Trade amongſt them; and with their *Jews*, who were then "the great dealers in Money.

"Now as our *Troy* Weight has appear'd to have been borrow'd "by us, from none of our *European* neighbours, but from *Ægypt*: ſo "too the *Averdupois*, tho' the ſame with the *Spaniſh* Pound, may "ſeem not to have been wholly owing to them; but to have "been adjuſted at leaſt by us from the *Cairo Ratel*. For the Ounce "we have, we divide not ſo into Grains, as the *Spaniards* do: and "we who borrow'd not our Ounce of 10 *Dirhems* at ſecond hand, "need not be thought to have taken that of about 9 *Dirhems*, the "*Spaniſh* or *Roman* Ounce from any but the Original. And ſo "our *Edward* the firſt, who again ſettled our Meaſures upon a "certain Standard; and who had indeed been a viſitant in *Spain*, "but upon action in the *Holy Land*, may be fairly preſum'd to "have fix'd both the one and the other Pound by the Meaſures of "the *Eaſt*.

CHAP. VIII.

Of Measures of Length, and Superficial Roman *Measures.*

IN the Construction of the Tables of *Roman* Measures of Length, I have follow'd Mr. *Greaves,* and taken the proportion from the *Cossutian* foot in *Rome,* which according to the *English* Standard is 11,604 Inches. The rest of the Measures are founded on known proportions.

Digitus latus or *transversus* is the fourth part of a *Palm,* or the 16th part of a foot.

[a] *Uncia* contains a *digit* and a third part, it is the third part of a *Palm* and $\frac{1}{12}$ of a *Foot.* For the *Pes* or Foot, like an *As* or Unite, was divided into 12 parts. [b] *Roman* Authors instead of *Uncia* use *Pollex* sometimes.

Palmus a Palm is $\frac{1}{4}$ of a *Foot,* from whence [c] *Columella* uses the expression *ad Palmum decoquere.*

This Palm was called the *Palmus Minor* to distinguish it from a greater, which some Authors make equal to 12 *Digits.*

Pes a Foot, as we said before, was divided as the *As.* Thus [d] *Pliny* speaking of *Cedar* Tables tells us, that *Tiberius* had a Table exceeding four Feet by a *Sextans* and a *Sicilicus,* that is by 2 inches and a fourth part: and that the thickness was *Sescuncialis,* an inch and a half. Thus the same [e] Author speaks of *folia Trientalia, Trientalis Herba,* that is 4 inches, and [f] *Herba Quincuncialis*: So likewise [g] *Bessales Laterculi* in *Vitruvius,* are Tiles 8 inches long. [h] *Sulcus Dodrantalis* in *Varro,* is

a Julius Frontinus de Jure Limitum.
b Plin. lib. 15. cap. 24.
c lib. 21. cap. 33.
d lib. 13. cap. 15. Tiberio principi mensam quatuor pedes sextante & Sicilico excedentem: totâ vero crassitudine sescunciali.
e lib. 27. cap. 5.
f Plinius lib. 27. cap. 11.
g lib. 7. cap. 4.
h lib. 3. cap. 19.

is a furrow of 9 inches deep. [i] *Pliny* mentions Pygmies who were not higher than *ternos Dodrantes*, that is 2 Feet and a Palm. [k] *Vitruvius* saith, that steps should not be thicker *dextrante, i. e.* than 10 inches, nor thinner than *dodrante, i. e.* 9 inches. In consequence of the *Pes* being reckon'd the *As*, *Dupondium* is used for 2 Feet, as you may read in *Columella*; which sentence at the bottom of the page might puzzle any Country-school-master, if he were not advertised of the meaning; therefore such little remarks, tho' they may seem trifling to some, are useful to others. In the Laws of the XII Tables, *Sestertius pes* is used for 2 ½ Feet: and *tripedaneæ Statuæ* in [m] *Pliny* signify, Statues 3 Feet high: tho' *tripes* in *Livy* signifies one with 3 feet.

[n] A Foot was used for a little Measure proverbially.

The breadth of any Highway or Lane was to be at least 8 Feet when streight, and when turning, 16. by the Laws of the XII Tables.

Palmipes was another *Roman* Measure, the length of a Foot and a Palm, or 15 inches, or 20 *digits*. This Measure is used by [o] *Pliny*, [p] *Columella*, and [q] *Vitruvius*. *Cubitus*, sometimes *Cubitum* in the neutral Gender, signifies the lower part of the Arm on which we lean. Κύβιτος or κύβιτον is a *Dorick* word, according to *Julius Pollux*; it is used among the *Romans* for a determin'd Measure of a Foot and a half. It contains, according to [r] *Vitruvius* 6 Palms or 24 *Digits*. From *Cubitus* is *Cubitalis*. Thus when *Pliny* saith that some [s] *Indians* had the soles of their Feet *Cubitales*, [t] and that the Tails of the Sheep in *Syria* were *Cubitales*, [u] and that some *Indian* Boars Tusks were *Cubitales*; it signifies according to *English* Measure 1 Foot, 5,406 Inches. [x] *Solinus* uses *Ulna* for *Cubitus*. Where [y] *Pliny* speaks of a *Crocodile* of 22 *Cubits* long, *Solinus* expresseth it by so many *Ulnæ*. And *Julius Pollux* takes both words for the

I same

[i] Lib. 18. cap. 19. [k] Lib. 3. cap. 3. [l] Columella lib. 3. cap. 15. A calamo usque ad proximum calamum non minus altum quam duos pedes & semissem planis minus locis r fodit, acclivibus in *Dupondium* & dodrantem; præcipitibus etiam in tres pedes. [m] Lib. 33 cap. 6. [n] Cicero lib. 7. Epist. ad Atticum. Pedem in Italia video nullum esse qui non in illius potestate sit. [o] lib. 17. cap. 20. [p] lib. 3. cap. 19. [q] lib. 10. cap. 21. [r] lib. 3. cap. 1. Cubitum animadverterunt ex sex palmis constare, digitis viginti quatuor. [s] lib. 7. cap. 2. [t] lib. 8. cap. 48. [u] lib 8. cap. 52. [x] cap. [illegible] [y] lib. 8. cap. 25.

ſame: τὸν ᾗ πῆχυν ὠλένην καλȣ̃σιν, they call a *Cubitus* an ***Ulna.*** [z] *Pliny* takes them for different Meaſures; for he ſpeaks of a ***Platanus,*** 15 Cubits long, but in thickneſs *quatuor Ulnæ*; by an ***Ulna*** he underſtands here, the length from the tip of one finger to the tip of the other, when a Man ſpreads his Arms. [a] For, ſpeaking of a Fir-Tree, he expreſſeth it thus. *Arboris ejus craſſitudo quatuor hominum ulnas complectentium implebat; & mox ibid. Maxima Cedrus in Cypro traditur ad undeciremem Demetrii ſucciſa, centum triginta pedum; Craſſitudinis vero ad trium hominum complexum.* This *Ulna* the *Greeks* expreſs by ὀϱγυιὰ, about 6 Feet: ſo that the Tree was 130 *Roman* Feet high, and 18 Feet in Circumference. [b] *Cælius* takes *Ulna* in the ſame ſenſe.

A Cubit was reckon'd by *Ariſtotle* the fourth part of the height of a well-proportion'd human body. For he ſaith a Man is ζῶον πεζὸν δίπȣν τετϱάπηχυ, or a walking *Animal* with two feet, and four Cubits (above 6 Feet) high. There are ſeveral that paſs for human Creatures who are excluded by this definition.

Paſſus, ſo called a *paſſis pedibus,* is a ſpace of 5 Feet long. *Pliny* uſes this Meaſure frequently in deſcribing the diſtances of places. *Centenaria* and *Millenaria,* when join'd to Subſtantives, *paſſus* is often underſtood, as *Porticus Centenarii,* that is *Portico's* of 100 paces.

[c] *Decempeda* was a ſort of meaſuring Rod for taking the dimenſions of *Buildings, Areæ, Land, Ways, Meadows, Mines,* &c. and ſignified the ſame thing as *Pertica* taken as a Meaſure of length. From hence came *Decempedator* for a Surveyor uſed by [d] *Cicero.* [e] *Decempeda* was ſometimes uſed for the Meaſure likewiſe, by the ſame Author. [f] The common word for a Surveyor was *Finitor,* and the Law word *Agrimenſor.*

[g] *Stadium*

[z] Lib. 16. cap. 32. Antandri Platanus etiam circumdolatis lateribus reſtibilis ſponte facta, vitæque reddita, longitudine XV Cubitorum, craſſitudine quatuor Ulnarum. [a] Lib. 16. cap. 40. [b] Lib. 4. cap. 3. Si ambas manus explices a pectore, in lineam rectam, ulna dicitur. [c] Palladius lib. 2. tit. 12. [d] Philip. 13. Cavebat etiam C. Antonio, qui fuerat æquiſſimus agri privati & publici decempedator. [e] Cicero Philip. 14. Quam jam peritus & callidus decempeda ſua ſaxa diviſerit. [f] Plautus in Pœnulo. Nunc regiones, limites, confinia determinabo: eius rei ego ſum factus finitor: Et Cicero contra Trullum. Finitorem mittat, ratum ſit, quod finitor uni illi, a quo miſſus erit, renunciaverit.

[g] *Stadium* contain'd 125 *Roman* Paces, or 625 Feet, according to *Pliny* and *Columella*. *Pliny* tells you that *Pythagoras* a very sagacious man reckon'd the distance of the Moon 126000 *Stadia*, and double of that to the Sun. A *Stadium* was ⅛ of a *Roman* Mile, and equal to 120 *English* paces, 4 Feet and 4 Inches and ½. According to *Pythagoras* therefore the distance of the Moon from the Earth is about 14418 ½ *English* Miles.

Milliare sometimes *Milliarium* so called from the thousand paces which it contain'd. [h] *Vitruvius* makes 5000 Feet and 1000 paces the same thing. [i] *Columella* tells you that a *Stadium* has 125 *Passus*, 625 Feet, which multiplied by 8 makes a Mile. *Cicero* seldom uses the word *Milliare*, but *mille passus*. The Miles of old were mark'd with Stones, which were used to express Miles. Thus *ad secundum Lapidem*; *citra octavum Lapidem*; *ad Lapidem duodecimum*; *XX. ab Urbe Lapidem*. *Bis decimus Lapis ab Urbe*; denote so many Miles. *Centum Millia* is used in the Code, for *centum milliaria*. *Valerius Probus* saith the Ancients used *ad quartum Cippum*, instead of *ad quartum Lapidem*.

[k] *Boetius* mentions the *Gradus* as a *Roman* Measure, which may be translated a step, or the half of a *Passus* or Pace. But this word is not to be found in any Classical Author.

Some Writers mention *Granum* as a Measure, being the fourth part of a *Digit*. All the Measures are comprehended in these verses.

Ex Granis Digitus quatuor formabitur unus:
Est quater in Palmo Digitus: quater in Pede Palmus:
Quinque Pedes Passum faciunt: Passus quoque centum
Viginti quinque Stadium dant: sed Miliare
Octo dabunt Stadia: at duplicatam dant tibi Leucam.

Schonerus de usu Globi, cap. 12.

[g] Plin. lib 2. cap. 23.
[h] Vitruv. lib. 10. cap. 14.
[i] Lib. 5. cap. 1.
[k] Decempeda decem pedes colligit, passus quinque gradus duos cum semisse.

Of Superficial Measures, and some Terms of Husbandry.

[l] ACTUS is the length of one furrow, as far as a Plough goes before it turns: it is properly translated in *English* a Furlong. This Measure is used by *Pliny*. Taken as a determin'd Measure it is 120 *Roman* Feet.

The *Romans* mention an *Actus minimus*, and *quadratus*. They tell you that the *minimus* was 120 Feet in length, and 4 in breadth: So *Varro* and *Columella*. The *Quadratus* was the Square of 120 Feet, or 14400: [m] this was called *Modius* and *Mina*.

[n] *Clima* according to *Columella* is a Square, whose side is 60 Foot, being 3600 square Feet.

Versus was a length of 100 Feet, and a Square of 10000.

[o] *Jugerum*, so called because it was a Space as much as could be tilled by a *Jugum Boum*, or Yoke of Oxen in a Day, and perhaps as *Pliny* thinks from the word *junctum*. *Jugerum* is the double of an *Actus Quadratus* or square *Actus*, being in length 120 Feet, and in breadth 240, making in square Feet 28800.

We may judge of the fertility of the *Roman* Land by several passages of *Varro* and *Columella*. [p] *Varro* tells you that every *Jugerum* of Vines yielded 600 Urns of Wine: according to this proportion, our Acre should yield 55 hogsheads and a little more. *Columella* tells you that each *Jugerum* of Vines in *Seneca*'s land yielded 8 *Culei*, which makes 160 *Amphoræ*: according to which our Acre would yield about 29 $\frac{1}{7}$ hogsheads. The same Author saith that those Vineyards ought to be extirpated which yielded less than three *Culei* the *Jugerum*; that is those, where one of our Acres did not produce 11 hogsheads.

As for the *Indian* Whales of four Acres, I refer the Reader to *Pliny*. [q] Two *Jugera* were call'd by *Varro*, *Hæredium*, *quod Heredem*

[l] Plin. lib. 18. cap. 3. [m] Varro lib. 1. cap. 10. De re rust. [n] Columella lib. 5. cap. 1. [o] Plin. lib. 18. cap. 3. [p] Varro lib. 3. cap. 9. [q] Lib. 1. cap. 10. Columella in præfat. ad lib. 1.

7

dem sequeretur. *Columella* tells you likewise that a Space of 180 Feet in length, and 30 in Breadth, was called [r] *Porca* by the Country people in *Bætica*. The same Author saith, that amongst the *Gauls*, in Towns a Space of 100 Feet, and in the Country of 150 Feet was named *Candetum*: and that they called a *Semijugerum*, *Arpennem*.

[r] *Centuria* was a space of 200 Acres; it took its name first from a hundred, and being doubled retain'd still the same.

The *Jugerum* was an *Integer*, divided like the *As* into *Unciæ*, *Sitiunciæ*, *Drachmæ*, &c. This appears from *Columella* and a passage in *Pliny*, and several other Authors.

Columella speaks of a *Semiscrupulum* of Ground as the least part of a *Jugerum*, which contains 50 Feet, and make the 576th part of the *Jugerum*. *Varro* reckons the *Scrupulus* or 100 Feet the least part. The Reader may see all the parts of the *Jugerum* in *Columella*, or in my Table. *Livy* uses the same way of expression. *Terna jugera & septunces viritim diviserunt*.

Of these *Roman* Measures, the Digit, Inch, Palm, Foot, Cubit, and Pace, were in use among the Architects. The Foot, Pace, *Stadium*, and Mile, among the Geographers. The writers of Husbandry reckon'd by Feet, *passus*, *actus*, *Climata*, *Jugera*, *Stadia* and *Centuriæ*.

GREEK *Measures*.

THE *Romans* borrowed their Measures from the *Greeks*, being about 16 in number, and commonly taken from the members of a human body. Δάκτυλος a finger's breadth, the fourth part of a Palm and $\frac{1}{16}$ of a Foot, just as among the *Latins*. Φύλλα διδάκτυλα τὸ πλάτος, Leaves of the breadth of two fingers. Ῥίζα ὡς τριδάκτυλος τὸ μῆκος, a Root of the length of 3 fingers, *Dioscorides*.

Δοχμὴ, from the verb δέχομαι, which signifies to receive, a [a] Palm or 4 fingers breadth.

It

[r] Lib. 5. cap. 1. [a] Pollux lib. 2. δοχμὴ συμπλακέντες οἱ τέσσαρες δάκτυλοι.

It is likewise called Δακτυλοδόχμη in a compound word.

The Palm is likewise called δῶρον, because a gift is made with the hands; so δίδωρον, τετράδωρον, πεντάδωρον, signifie a course of 2, 4, or 5 Palms. [b] And so in *Homer* κέρα ἑκκαιδεκάδωρα, horns of 16 Palms long. It is also called ἡ παλαιστὴ, διπάλαιστος, τετραπάλαιστος, πενταπάλαιστος, So that these four words δοχμὴ, δακτυλοδόχμη, δῶρον and παλαιστὴ signify the same thing. A Reader of ancient Authors ought to be advertised of this.

[c] Λιχὰς is a measure of 10 δάκτυλοι or fingers, from the thumb to the long or middle finger.

[d] Ορθόδωρον is the length of the hand, that is from the upper part to the extremity of the longest finger, is reckon'd equal to 11 δάκτυλοι.

[e] Σπιθαμὴ is the length of the hand extended, between the thumb and the little finger. It is reckon'd equal to ¾ of a Foot, or 12 Digits.

Strabo calls the Pigmies τρισπιθαμὰς, which is wrong interpreted in *Latin trium Palmarum homines*, for it makes 2 foot and 3 inches. According to *Nicephorus*, our Saviour was ἑπτασπιθαμῶν, that is 5 *Græcian* Feet and a Palm. Δόρας according to *Hesychius* signifies the same thing with σπιθαμή.

Πȣ̃ς the foot according to *Herodotus*, *mensura* τετραπάλαιστος that is of 4 Palms. According to *Suidas* ὁ πȣ̃ς ἔχει δακτύλȣς ις', that is, a foot has 16 Digits. It was likewise divided like a *Roman* foot into 12 Inches.

In the Reduction of this to *English* measure, we have suppos'd with the generality of Authors, that the *Grecian* Foot exceeded the *Roman* by a *Roman* half inch. Those tell you, that there is still at *Rome* a measure of 9 *Greek* Feet with the Inscription ποδῶν θ. that is 9 Feet, which agrees with this measure, being in proportion to the *Roman* Foot as 25 to 24. The *Greek* Foot of *Pliny* in Dr. *Bernard* is 1,0104 which exceeds that of the Tables by $\frac{171}{10000}$, or about $\frac{1}{27}$ of an Inch. The learned Bishop often mention'd, supposes the *Attick*

b Iliad. 4. c Pollux lib. 2. εἰ δὲ τ̃ μέγαν δάκτυλον τῷ λιχανῷ ἀποτείνας τὸ μέτρον λιχάς. d Poll. ibid. τὸ ἢ ἀπὸ καρπȣ̃ ἕως ἄκρων δακτύλων ἡ πᾶσα χεὶρ ὀρθόδωρον. e Poll. ibid. εἰ ἢ τȣ̀ς δακτύλȣς ἀποτείνας ἀπὸ τȣ̃ μεγάλȣ πρὸς τ̃ σμικρότατον, μέτρον σπιθαμή.

tick Palm equal to ours, at least increasing of it by less than $\frac{1}{60}$ part, will make the weight of water of an *Attick* cubical Palm about 7000 Grains, the weight of the Ancient *Mina*. The *Greek* Foot of 1,0104 will make the cubical Palm 7012 Grains. The Palm by the measure in the Tables makes it 6990. The *Averdupois* pound according to my measure is 6994, which differs only by 4 Grains, and consequently comes nearer to the *Averdupois* pound or ancient *Attick Mina*, which is justly suppos'd to be a cubical palm of water.

Some of the unusual statures of men according to the Ancients are as follows.

Plin. lib. 7. *c.* 2. tells of *Pygmies* 3 *Spithamæ* high, that is 2 Feet 2 Inches.

The same Author saith that there were many *Indians* above five Cubits high, or above 7 Feet 3 Inches. *Herodot. lib.* 9. and *Arrianus lib.* 5. talk of men of the same height.

Julius Capitolinus saith that the Emperor *Maximinus* was near 8 ½ *Roman* Feet high, that is near 8 Feet, 2 ½ Inches *English*. *Erasm. Chil.* 1. *c.* 21.

Herodot. lib. 7. saith that *Artachæas* a *Persian* wanted only 4 Inches of being 5 Royal Cubits high, that is 8 Feet, 5 Inches. A Royal Cubit according to the same Author exceeds the *Babylonish* by 3 Inches: which therefore I suppose equal to 21 Inches. *Goliath* the *Philistin* was 6 ½ Cubits high, that is 12 Feet 4 Inches, reckoning *Jewish* Cubits.

Josephus lib. 18. *cap.* 8. ἀρχαιολ. saith *Artabanus* made a present of a *Jew* to *Tiberius*, whose height was seven Cubits, or 12 Feet 9 Inches.

Plin. lib. 7. *c.* 16. saith that *Orestes* was seven Cubits high, or 10 Feet 7 Inches, *viz. Greek* Cubits. *Pliny lib.* 7. *c.* 2. saith that the *Syrbotæ* a people of *Æthiopia* were above 8 Cubits high, that is above 11 Feet 7 Inches.

The Bed of *Og* King of *Basan* was 9 Cubits long, that is 16 Feet 5 Inches, and 4 broad, that is 7 Feet 3 Inches. *Deut. Chap.* 3.

Suidas

Suidas saith that King *Ganges* was 10 Cubits high, or 15 Feet 1 Inch.

Homer Odyss. λ. saith that *Otus* and *Ephialtes* were 9 Cubits broad, and 36 Cubits high.

From πȣ̃ς are derived ποδιαῖος, διποδιαῖος, τριπόδης, that is 1, 2, 3 Foot long. They used ἡμιπόδιον half a Foot, with the compounds of it, τριημιπόδιον, πενθημιπόδιον, to signify 3 half Feet, or 1 ½ Feet, and 5 half Feet or 2 ½ Feet. *Solon* fix'd boundaries of people's grounds by the following measures; a hedge or a wall was to be distant one Foot from your neighbour's ground; a house two Feet; a Sepulcher or a Ditch as much space as they were deep; an Olive and a Fig-tree nine Feet, and all other Trees five. This was copied in the Laws of the XII Tables with very little alteration.

The walls of *Nina*, or *Nineveh* were 100 Foot high, and the Towers 200.

[f] Πῆχυς a Cubit contains one Foot and a half. *Hesychius* ἑξαπάλαιστος according to *Herodotus*, or of 6 Palms, which give the same proportion. The print of *Hercules*'s foot was δίπηχυ or two Cubits long, in *English* measure about 2 Foot 3 Inches. This was to be seen, as *Herodotus* saith, in a rock in *Scythia*.

[g] Πυγὼν was the measure from the Elbow to the second joint of the Fingers, or a Cubit with the fingers inflected: it was a fifth part shorter than the Cubit, and consisted only of 20 digits. *Xenophon* and *Herodotus* make use of this measure.

[h] Πυγμὴ was the measure from the Elbow with the Fingers quite claspt, and consisted of 18 digits. *Eustathius* tells you, the *Pygmies* have their name from this measure.

[i] Ὀργυιὰ from ὀρέγειν to extend, according to *Herodotus*, it is τετράπηχυς or four Cubits, and ἑξαπόδης or six Feet. According to *Columella* it is 6 *Greek* Feet. *Pliny* expresses it by *Ulna*, as may

[f] Pollux lib. 2. ἀπὸ τοῦ ὠλεκράνου πρὸς τὸ τοῦ μέσου δακτύλου ἄκρον, τὸ διάστημα, πῆχυς.

[g] Pollux ibid. εἰ δὲ συγκάμψειας τοὺς δακτύλους ἀπὸ ἀγκῶνος ἐπ' αὐτοὺς, πυγὼν τὸ μέτρον.

[h] Pollux ibid. εἰ δὲ συγκλείσειας (τοὺς δακτύλους) πυγμή.

[i] εἰ δὲ ἄμφω τὰς χεῖρας ἐκτείνειας ὡς καὶ τὸ στέρνον αὐταῖς συμμετρεῖν, ὀργυιὰ μέτρον.

may be seen in the chapter of *Roman* measures. He translates πυραμὶς τεσσαρακοντόργυιος, *pyramis quadragenarum ulnarum.*

The Pillars of the *Cyzicenian* Temple were in circumference four *Ulnæ* or Οργυιαὶ, and 50 Cubits high, all of one Stone.

The Circumference of the Pillars of *Herod*'s Temple was 3 ὀργυιαί.

Strabo tells you of vines in *Margiana*, in circumference at the root, of the ὀργυιαὶ of two men.

Hesychius mentions γυίη a measure equal to the ὀργυιά.

Πλέθρον or πέλεθρον is a measure of 100 Foot according to *Suidas*, ἔχει πόδας ρ΄. In the *Epitome* of *Strabo*, it is reckon'd ἑξημόριον τοῦ σαδίου, the 6th part of a *Stadium*.

From πλέθρον comes πλεθριαῖος, an adjective signifying a hundred feet long; as in *Herodotus*, φοίνικας πλεθριαίους Palm Trees 100 feet long, which he saith grew in *Babylon*. And *Strabo* mentions a *Dragon* about that length.

Πλέθρον also signifies a *Jugerum* or *Roman* Acre. *Hesychius* saith, μέτρον γῆς, ὅ ἐστι πλέθρον, *i. e.* a measure of land. *Plutarch* in the life of *Camillus* calls πλέθρον, what *Livy* calls *Jugerum*. So *Laurentius Valla* translates it from *Herodotus*.

Ἄρουρα, according to *Suidas*, is a measure of 50 Feet. And it signifies likewise a field, or manured ground.

Στάδιος, according to *Herodotus*, *lib.* 2. is a measure equal to 100 ὀργυιαὶ, or of 600 *Grecian* Feet. The same Author saith it is 400 Cubits, which is the same thing. From σάδιος comes σαδιαῖος, in *Strabo* πυραμίδες τὸ ὕψος σαδιαῖοι, signify *Pyramids* of the height of a *Stadium*, or 600 Feet.

The City *Nina*, which in the Scripture is called *Nineveh*, was in Circumference 480 *Stadia*, according to *Diodorus Siculus*: which comes near to 55 *English* Miles, reckoning 600 *Grecian* Feet to a *Stadium*. The same was the circumference of *Babylon*. *Strabo lib.* 16. saith that *Belus*'s Sepulcher was a *Stadium* in height, and in other every dimension; which if true, it far exceeded the greatest of the *Ægyptian Pyramids*.

K Στάδιος

Στάδιον by the ancient *Greeks* was called αὐλὸς, from whence came δίαυλος, a ſpace of two *Stadia*.

Ἱππικὸν ςάδιον is reckon'd 4 *Stadia* by *Plutarch* in the life of *Solon*. And *Heſychius* ſaith, ἵππειος· δρόμος τετραςάδιός τις. i. e. a horſe's courſe of four *Stadia*.

Μίλιον a Mile, was taken from the *Latin Mille*. It contain'd 8 *Stadia*. *Suidas* ſaith, τὰ δεκαμίλια ἔχουσι ςάδια π΄. *h. e.* 10 Miles has 80 *Stadia*. Some reckon'd it more than 8 *Stadia*.

Jewiſh *Meaſures of Length, &c.*

THE *Jewiſh* Meaſures of Length for the firſt period are ſomewhat uncertain, and in a matter ſo obſcure, one muſt follow common opinions. The Cubit in the Tables formerly publiſhed is that of Dr. *Cumberland* late Biſhop of *Peterborough*, who himſelf follows that of *Rabbi Godoliah*. This *Rabbi*, as the learned Dr. *Hooper* ſaith, is ſuppoſed to ſpeak the mind of *Maimonides*, one of the moſt knowing and learned of their Writers.

Accordingly I have ſtated the meaſure of the *Jewiſh* Cubit or *Ammah* to be 21,888 Inches *Engliſh*; which is the length of the preſent *Cairo* Cubit. This depends on the proof of two Propoſitions; Firſt, that the preſent Cubit of *Ægypt* is the ſame with the ancient. Secondly, that the *Jewiſh* Cubit was the ſame with the ancient *Ægyptian* Cubit; the proofs of which, according to Biſhop *Cumberland*, are as follow.

That the inhabitants of *Ægypt* have always made uſe of the ſame Cubit, is inferr'd from the following reaſons. Firſt, That there is no intimation in hiſtory of any ſuch change of their meaſure. Secondly, that the *Nilometrion* or *Column* divided into *Ægyptian* Cubits to meaſure the increaſe of the height of the *Nile*, is ſuppoſed by moſt Authors to have continued the ſame, ever ſince *Joſeph*'s Regency. That a certain height of 16 Cubits (according to *Herodotus* and other writers) was neceſſary to produce the common

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mon fertility of the Soil, and by this the people judg'd of the future Crop. For such a natural reason the government would not, and the people neither would nor could, change the Standard measure.

Secondly, The *Nile* by its annual overflowing sometimes confounding the boundaries of people's properties, it was necessary to have a stated Measure of length to set them out again. Of this Bishop *Cumberland* gives an Example in the land assign'd to the *Militia*, as follows.

" The strength of this reason may be understood more clearly " by help of an Example in *Herodotus* his *Euterpe*. There he tells " that in *Ægypt* their settled *Militia* consisted of these two sorts " of Soldiers, who were esteemed above all Tradesmen, the *Her*-" *motybiæ*, and the *Calasiries*. The full number of the later of " these was 250000 Men, who in courses were their King's " Guards, and every one of them had to maintain him and his " family Land, (free from Taxes) whose *Area*, or superficial con-" tent, was 12 *Arouræ*, each *Aroura* being 100 Cubits on " every Side; which imports that it was the Square of 100 Cu-" bits. Wherefore to know how much land this was in our mea-" sure, I took the *Cairo* Cubit an hundred times, which is 182,4 " in our foot measure, as may be inferr'd from Mr. *Greaves* his " Table: and by squaring this number, I find an *Aroura* to be " 33269,76 square Feet. Which is considerably less than one " *English* Acre, for that contains 43560 square Feet. Hence it " will follow that 12 *Arouræ* will amount to 399237,12 square " Feet. And this divided by the feet of an *English* Acre, will " quote 9,165. which demonstrates that the Land of each *Calasi*-" *ry* amounted to 9 *English* Acres, and 165 *Millesimals* of an A-" cre, or 1 tenth of an Acre, 6 *Cents*, &c. above the 9 entire " Acres: And it's clear, that so much good land lying where he " places it, might maintain any of them with his Family very well.

A Cubit shorter than the Standard, men of their character would not bear; a longer must either make a Mutiny among themselves,

viz. amongſt thoſe who were laſt ſerved; or a Sedition among the people.

This is a plauſible argument; however it is not to be imagin'd that after every overflow of the *Nile*, there was always a menſuration, but ſuch a thing might be neceſſary ſometimes.

Thirdly, The Nation who conquer'd *Ægypt*, could not have introduced their meaſures; for the *Babylonian* Cubit of 5 Palms is much ſhorter, and ſo is the *Roman* and *Greek*; and the *Turkiſh* Pike, which is deriv'd from πῆχυς, is much longer than this *Cairo* Cubit.

Another preſumption ariſes from the Dimenſions of the greateſt *Pyramid*, which meaſur'd by this Cubit falls into round numbers, as it may be ſuppos'd an *Architect* would chuſe in ſetting out the plan of a ſtately building, rather than ſuch as end in Fractions. "The ſides of the Baſe of the great *Pyramid* are delivered, *p.* 68, "of Mr. *Greaves's Pyramidographia*, to be 693 *Engliſh* Feet. For "Reduction, theſe muſt be divided by 1,824, which is his length "of the *Cairo* Cubit in our foot meaſure, the quote is 379,934, "which is ſo very little ſhort of 380 *Cairo* Cubits, that I think it "reaſonable to believe that the old *Architects* deſign'd juſt this "even number of *Ægyptian* Cubits. For if we ſuppoſe Mr. *Greaves* "to have miſſed but ,12 of a foot, which is not one Inch and "an half, in taking this long meaſure of near 700 feet, then the "Side muſt be put 693,12: this number divided 1,824, will "give preciſely 380.

"In like manner I remembred, that *Greaves, p.* 96, 97, gives "the length of the exterior Surface of the Tomb, contain'd in the "midſt of the greateſt *Pyramid*, to be in our foot meaſure 7,296. "This reduced into *Cairo* Cubits, by dividing by 1,842, gives "juſt four ſuch Cubits.

I cannot admit of this Argument of the Biſhop's, at leaſt of the inference which he draws from it. For a ſhorter Cubit will bring out the dimenſions of the great *Pyramid* and its parts in round numbers, with better analogy than the Cubit of 21,888 Inches.

He finds the ſide of the Baſe to conſiſt of 380 ſuch Cubits, and that of a Tombſtone of four, nearly. Mr. *Greaves* has given the dimenſions of ſo many parts of the *Pyramid*, that any Cubit whatſoever would probably anſwer to one or two of them nearly in Integers. So the Strength of the Biſhop's argument depends chiefly on 380 being a remarkable number, ſuch as an *Architect* would chuſe for the dimenſion of the Principal part of his *Fabrick*. But why it ſhould be thought ſo remarkable for its Square 144400, does not appear, or even ſo fit for the Side of the *Pyramid*, is not ſo obvious, ſince it conſiſts of 300 and 80 over. I will ſuppoſe rather that the *Architect* chooſe 400 Cubits for the Side of the Baſe; this is properly a round number, and the Cubit from thence deduced will be found to agree better with the other Dimenſions than the preſent *Cairo* Cubit.

Divide 693 the number of feet by 400, the quotient will give the ancient *Ægyptian* Cubit equal to 1,7325 Feet: which is ſhorter than the Biſhop's: and is compared as follows with ſome of the moſt remarkable dimenſions. Mr. *Greaves* mentions three Square holes, each in breadth exactly 3,463 Feet: this number divided by the Cubit 1,7325 quotes 1,9988, this differs only 12 ten thouſandth parts from 2, which therefore I ſuppoſe was the number of Cubits deſign'd. Now dividing that number 3,463 by the Biſhop's Cubit 1,824, the quotient 1,898 differs above 1 tenth from 2.

The Breadth of a Gallery in the *Pyramid* is 6,87 Feet, which divided by 1,7325 gives 3,96, which differs from 2 but by 4 hundredth parts: but being divided by 1,824 gives 3,76, which differs 24 hundredth parts from 4 Cubits.

The Breadth of two Banks of poliſh'd ſtone is 1,717 Feet. The difference of this from 1,7325 is about 15 thouſandth parts, but difference from 1,824 is one tenth of a Foot.

The Breadth of a Way between thoſe banks is 3,436, which differs from the double of 1,7325, or 3,465 by 3 hundredth parts

of

of a Foot; it's difference from the *Cairo* Cubit doubled is above ſix times as much.

Mr. *Greaves* tells us the length of a Marble Chamber is 34,38 Feet, and its breadth the half of that: which anſwer to 20 and 10 Cubits: ſuppoſing the Cubit 1,7325.

Theſe Meaſures agree as well with this Cubit as our own Meaſures now-a-days in buildings agree with our Foot.

According to this ſuppoſition the old *Ægyptian* Cubit is equal to 1,7325 Feet *Engliſh*, or 20,79 Inches. And that this was the Cubit then in uſe among the *Ægyptians* when the great *Pyramid* was built, ſeems to be pretty plain from what has been ſaid above. It is to the preſent *Cairo* Cubit as 19 to 20.

According to the *Iſagoge* of *Heron*, the Royal *Ægyptian* or the *Philetaræan* Foot was to the *Roman* Foot in the proportion of 6 to 5; and therefore the Cubit was in the ſame proportion to the *Roman*, or equal to 20,8872 Inches, which differs from that found by the *Pyramid* leſs than $\frac{1}{10}$ of an Inch. This is a great confirmation of the meaſure of the Cubit drawn from the *Pyramid* as above. But Biſhop *Cumberland* being an Author on this Subject of great Eſteem, I have ſet down Tables calculated according to his Hypotheſis. At the ſame time I chuſe rather to recommend the other from the *Ægyptian* Cubit of 20,79 Inches *Engliſh*, computed in Decimals.

The ſecond Propoſition, that the *Jews* uſed the *Ægyptian* Meaſures, ſeems, if not evident, at leaſt extremely probable for theſe reaſons.

They had been in that Country in a ſtate of Slavery for about 200 years, and conſequently in all appearance had no Meaſures of their own. *Moſes* when he ſpeaks to them of Meaſures, to be ſure talks in a Style that was intelligible. When he ſpeaks for example of an *Ephah*, he preſumes they knew what Meaſure he meant. That he himſelf was ſkilled in *Weights* and *Meaſures*, *Arithmetick* and *Geometry*, there is no reaſon to doubt: beſides, thoſe of the *Ægyptians* were adjuſted by the Authority of their firſt King

Mizraim,

Mizraim, who receiv'd them from his Predeceſſors *Ham* and *Noah*, from whom *Abraham*'s family had them likewiſe. From *Noah* to *Joſeph*'s promotion there were but 283 years: and *Joſeph* in his Regency is ſuppoſed to have ſet up the *Nilometrion*, which is divided into Cubits of Meaſure abovementioned.

It is probable the Meaſures as well as the Weights continued the ſame. But the word *Shekel* is uſed in this Period indifferently, which if it had ſignified different Weights, muſt have been equivocal.

The Diviſion of the *Jewiſh* Cubit into 6 Palms after the manner of the *Ægyptians*, is another probable argument of the identity of thoſe Meaſures. And as for different Cubits, the Biſhop thinks there ſeems to be no foundation for them in Scripture; where there is a different Cubit mention'd, it is ſpecified, as the bed of Og is meaſur'd by the Cubit of a Man, not the Standard Cubit.

The other two places that intimate ſome difference of Cubits, are in *Ezek.* xl. 5. and xliii. 13. "Now he writing while he "he was a Captive in *Babylonia*, muſt be thought to have obſer-"ved that Meaſure differing from the *Jewiſh* Standard, was there "often uſed, even by the *Jews* alſo, who muſt uſe the Meaſures "allowed in the Kingdom where they live; and therefore being "to give them the Meaſures of the future Temple, he was obli-"ged to intimate that the Cubits whereby they were expreſſed, "were not ſuch as in this foreign Kingdom they often uſed, but "longer by one hand's breadth.

Another Argument is, that the Eaſtern people determin'd their Digit, and conſequently their Hand-breadth, by the Breadth of Barley Corns, 6 making a Digit, and 24 a Hand's-breadth: ſix ſuch Grains will make 912, of an Inch at a middle rate, a ſmall matter over or under, which according to the ſtated proportion will produce the Cubit above-mentioned 21,888 Inches. The *Greeks* and *Romans* fall ſhort of this Meaſure, by fixing that of their Cubit and Foot firſt, and then ſubdividing it.

In *Ezek.* xliii. 13. parallel to xl. 5. the dimensions of an Altar are described by a Cubit an Hand-breadth longer than that of the *Babylonians,* where they were Captives, from whence it follows that a Hand-breadth was a known Measure. Secondly, this was to lead them to their own Measure, which was bigger than the *Babylonian,* consisting of 5 Palms, whereas the *Jewish* consisted of 6.

To prove this, the Bishop quotes a passage from *Misne Chilaim cap.* 17. cited by *Arias Montanus,* who says that there were two Standard Cubits kept at *Susan,* one of 5 Cubits, the other of 6. *Herodotus* in his *Clio,* describing the height of the walls of *Babylon,* makes the same distinction between two sorts of Cubits, he saith they were 200 Cubits high, Royal Cubits were 3 Finger's Breadth (δάκτυλοι perhaps Inches) longer than the common Cubit.

By comparing the Measure of the outward Wall of the Temple in *Josephus* with the *Jewish Stadium* of 400 Cubits, and that of the *Talmudists* by the *Roman* Measure of 500 Cubits; *Jacobus Capellus* infers, that the *Jewish* Cubit was to the *Roman* as 5 to 4.

On the other hand, it is own'd that *Josephus* supposes the *Jewish* Cubit equal to the *Attick,* and differs from the *Rabbins* in this particular as in the value of their Coins. *Abulfed* an Eastern Prince, King of *Hamath,* a City and Territory near *Judea,* and exceeding curious in Weights and Measures, affirms (as quoted by *Kircher*) that the *Jewish* legal Cubit was equal to the *Ægyptian* of 24 Digits.

Rabbi Gedaliah compares the *Jewish* Cubit with the *Bolognian* Ell, from whose very unaccurate calculation the Bishop makes the length of the *Jewish* Cubit to be 21,735 Inches, differing from his not much above $\frac{1}{10}$ of an Inch.

Another argument is drawn from Conveniency. According to this Measure the height of the Table of *Shew-bread, viz.* 1 $\frac{1}{2}$ Cubit, will be 32,832 Inches. According to the old *Roman* Cubit, it's height will be only 26,109 Inches; too low for a Table.

The

The capacity of the *Ark* according to a Cubit of 18 Inches will be little more than half of what it is by this Cubit of 21,888 Inches.

These Arguments of Bishop *Cumberland*, for the *Jews* having had only one Cubit, and that of 21,888 Inches I submit to the Reader; but to me it seems plain, that they us'd two sorts of Cubits, the sacred one, and the profane or common one. For (*Deut.* iii. 11.) the Bed of *Og* is said to have been 9 Cubits long and 4 Cubits broad, after the Cubit of a Man. And (*Ezek.* xl. 5.) *Ezekiel*'s Reed is said to be 6 Cubits long, by the Cubit and Hand-breadth. From whence it appears that the larger Cubit by which the Reed was measur'd, was longer than the common one, by a Hand-breadth or 3 Inches. Agreeably to this, *Herodotus*, speaking of the walls of *Babylon*, saith they were 50 Royal Cubits broad, and 200 high; and then he adds that the Royal Cubit was longer than the ordinary one by 3 δακτύλοι, which being understood of Inches, this account of the Royal *Babylonish* Cubit agrees with that of the sacred one in *Ezekiel*.

It's agreed by all Authors that the common Cubit was 6 Hand-breadths or 18 Inches, consequently the sacred one was 7 Hand-breadths or 21 Inches. Accordingly we find the great Cubit deduced from the *Pyramid*, differing from 21 *English* Inches only by 21 Hundred parts of an Inch. And if it's 7th part be substracted from it, that is, 2,97 from 20,79, there will remain 17,82 Inches equal to the profane Cubit; and differing from ours of 18 Inches by 12 hundred parts of an Inch. And it is undoubtedly this shorter Cubit of the *Jews* which *Josephus* makes equal to the *Grecian*, the difference being but $\frac{1}{10}$ of an Inch. In the Decimal Table the subdivisions of the Cubit, *viz.* the Span, the Palm and Digit are deduced according to the known proportions from the shorter Cubit 17,82 Inches, and the greater Measures are reckon'd according to the sacred one: altho' it is uncertain whether the sacred or the profane were most commonly us'd among the *Jews*. Besides the *Ammah* or Cubit, the *Hebrews* had two other Measures taken from

the parts of a human body. *Tophach,* the 6th of a Cubit: [a] which is interpreted by the LXX always a Palm.

[b] *Zereth,* half a Cubit, which the LXX render σπιθαμὴ a Span. *Josephus* puts 2 σπιθαμὴ or Spans for one Cubit.

The Stature of *Goliath* was 6 *Emoth* and a *Zereth,* the LXX render it ἐξ πήχεων ϰ̀ σπιθαμῆς, that is 6 Cubits and a Span, according to *English* Measure 11 Feet 10 Inches.

[c] There is likewise another word *Gomed,* which the LXX render σπιθαμὴ.

[d] *Kaneh,* from whence perhaps the *Latin* word *Canna,* is translated by the LXX κάλαμος, a measuring Rod, supposed to be of 6 Cubits long.

[e] *Pathil* and [e] *Chebel,* it is translated by the LXX σχοινίον γεωμετρικὸν, *Schœnus,* a measuring line, supposed to be of 80 Cubits.

[f] Their Mile they had from the *Romans. Berath* is commonly interpreted a Mile.

[g] The *Parasang* is a *Persian* Measure consisting of 30 *Stadia.*

Their *Sabbath* Day's journey, suppos'd to be equal to the Space between the *Ark* of the Covenant and the camp of the *Israelites,* 2000 Cubits; so long a journey was allowed to those that went to worship. *Origin* makes it amount to 3000 Cubits.

A day's journey is an uncertain Measure among all the Ancients, sometimes of 20 *Italian* Miles, as in the Civil Law *de excusatione tutelæ.* It is reckon'd by *Herodotus* 200 *Stadia,* or near 19 Miles.

The same Author speaking of the mansions of the *Persian* Monarchs, saith they travell'd 150 *Stadia* a day, that is about 17 Miles. There are [h] instances of very long days journeys. *Julius Cæsar* used to travel commonly 100 *Roman* Miles in a day.

[i] *Curio* travell'd with *Cæsar*'s letters 3300 *Stadia* in three Days, that is 377 Miles *English.*

There

[a] Psalm. 39. 1 Kings 7. Ezek. 40, 43.
[b] Exod. 28, 39. 1 Sam. 17. Ezek. 43. Isaiah 40.
[c] Judges 3. [d] Ezek. 40. [e] Zachar. 2.
[f] Genes. 35, 47. & 48. [g] Herodot. lib. 6.

[h] Suet. in Cæsare. Centena passuum millia in singulos dies Rheda meritoria expeditus conficere solitus est.
[i] Appianus lib. 2. Bellor. Civil.

There are several long Days Journeys mention'd by *Pliny*, as prodigies of quick travelling. [k] As of *Anistis* a *Lacedæmonian* Runner, and *Philonides* one of *Alexander's*, who ran 1200 *Stadia* from *Sicyon* to *Elis* in one day, that is 137 Miles.

[l] *Tiberius Nero* travelled with 3 Chaises in one day and one night a journey of 200 Miles, to see his brother when he was sick.

[m] The Ancients us'd Caleches, the figures of several of them are to be seen on ancient monuments. They are very simple, light, and drove by the Traveller himself.

The day's sailing of a Ship assign'd by [n] *Herodotus* is 700 *Stadia*, *i. e.* 84 ½ *English* Miles. And for the Night 500, or 70 ½ Miles making in 24 hours 155 *English* Miles; seems too long.

The voyage of *Solomon's* Fleet, which was sent to *Tharsis* for Gold, was Triennial, from which instances it seems their Merchant Ships were slow Sailors; and indeed they were of a most inconvenient figure for it, being round or oval.

Now we are upon the subject of travelling, it may not be improper to say something of their Highways and Bridges; and to apply the Tables in some particulars of that kind.

Their Highways, for their extent, solidity or expensiveness, are some of the greatest monuments of the grandeur of their Empire. Their Center was the first stone or the *Milliare Aureum* in the middle of *Rome*, from whence they branch'd themselves out to the utmost limits of the Empire. The *Appian* way about 2000 years old continues in many places entire for several miles near *Fonde*; which is not to be wonder'd at, considering the manner of the workmanship. *Montfaucon* tells you that he observ'd part of it where the stones above were removed between *Velletri* and *Sermonetta*; which gave him an opportunity to consider the manner of the structure; the foundation was made of rough stone join'd together with a most firm Cement: upon this there was laid another layer,

k Plin. lib. 7. cap. 20. Donec Anistis cursor Lacedæmonius, & Philonides Alexandri M. a Sicyone Elin uno die MCC. stadia cucurrerunt.

l Tiberium Neronem nocte ac die longissimum iter tribus vehiculis emensum, festinantem ad Drusum fratrem ægrotantem in Germania.

m Vide Montfaucon Tom. 4.

n Lib. 4.

consisting of small stones and Cement, to plane as it were the inequalities of the lower *Stratum* or rough stone, in which the stones of the upper pavement were fixt. This was an excellent contrivance, for there can be no very durable pavement but a double one. The thickness of the whole structure was about 3 *Parisian* Feet, or 3 Feet 2 ½ Inches *English*.

In some places their highways had borders for foot passengers about 2 Foot wide, and 1 ½ Foot high. They were so rais'd, perhaps for the conveniency of people dismounted, to get on horseback, which was sometimes necessary before the use of stirrups. The breadth of such a way was between the borders about 14 Feet, a space sufficient to let two Chariots pass; the concourse of many of them at a time not being so common in these Days. Such was the structure of the ways of *Italy*. In other Countries, as particularly in that part of *Gallia* called *Belgica*, they were larger, and made after the following manner. There was a Ditch drawn between two parallel Furrows, which was filled with some sound materials, and ramm'd to make the foundation solid, and rais'd so high in marshy places that the waters could never cover them, sometimes to the height of 20 Feet. The ways were made of several layers of flat stones and flint cemented so strongly, that Ages have not been able to break or disjoint them. The construction was a little various, according to the nature of the Soil or the Materials which they found.

There were likewise Inns built at proper distances to receive Travellers. I could not forbear mentioning these particulars, tho' not directly relating to the subject. It is one of the greatest concerns of Government to make their people easy and secure upon the roads, and this is still more necessary in a trading Nation. And the expence that is laid out in strength and solidity is frugality.

The *Roman* Bridges were no less wonderful than their highways. Some of them have been repair'd and are yet standing; and the remains of the others shew the magnificence of their structure: for example,

example, that of *Narni* between *Loretto* and *Rome*, suppos'd to be built by *Augustus*. It joins two mountains, between which the *Narni* runs. The Bridge consisting of four arches, is of the length of 636 modern *Roman* Feet, or 583 *Parisian*, that is 622 $\frac{1}{5}$ *English*. The dimensions of the arches are as follows, in *English* Measure: The height of the first Arch 109 Feet, the distance between the Piers 72 $\frac{1}{2}$ Feet. In the second Arch the distance of the Piers is 130 Feet. In the third their distance is 109 Feet. In the fourth the distance is 138 Feet.

The description of *Trajan*'s Bridge over the *Danube* does not answer the figure of it upon his Pillar, if it be the same. According to *Dio* this Bridge had 20 Piers of square stone, 150 Feet high above the foundation, and 60 Feet broad, distant and joined with Arches of 170 Feet; and what makes the work the more wonderful, is the owzy bottom, and the impetuous stream of the River, because of the comparative narrowness of it in that place; besides there was no other channel could be cut to divert the River till the Bridge was built.

A description of a very wonderful Bridge of *Julius Cæsar*'s over the *Rhine* is to be seen in his own Commentaries, but Architects differ widely in the figures which they have given from that description.

Pons Vardi, commonly called *Pont du Gard*, three Leagues from *Nismes*, is another instance of the *Roman* elegance and magnificence; it consists of three orders of Arches: the inferior Piers are continued upward, and support the others, leaving a free passage for Travellers. The inferior Arches are six, the second Row eleven, the highest being but small, are 35. This height was necessary, because the Bridge serves likewise for an Aqueduct. The lower Row of Arches takes up the space of 438 feet, the second of 746, and the third 805. The whole height of the Bridge is 182 Feet. It is built of stones compacted together with Iron.

The Bridge of the old *Brioud* in *Auvergne*, mention'd by *Montfaucon*, consists only of one Arch, which from one Piere to the other

other is 195 Feet: from the top of the Bridge to the water are 84 Feet.

The Bridge of *Alcantara* in *Spain* upon the *Tagus,* built in the reign of the Emperor *Trajan,* is in length 670 Feet, conſiſting of 6 Arches of the breadth of 84 Feet. The Piers are ſquare, about 28 Feet wide. The Bridge is 28 Feet broad, and 200 Feet high.

They had likewiſe the art of making Bridges of Boats. But this by the way.

But to return to our Subject, *viz.* Meaſures of diſtances or lines, of which Time may be reckon'd one. Amongſt the *Romans* when the *hora* was called the *integer,* it was divided into 12 parts like the *As.* A Reader not attending to this, would find it very hard to explain the following paſſages in *Pliny lib.* 2. *cap.* 14. *Lunam ſemper averſis a ſole cornibus, ſi creſcat, ortus ſpectare: ſi minuatur, occaſus, haud dubium eſt. Lucere dodrantes ſemuncias horarum ab ſecunda adjicientem uſque ad plenum orbem, detrahentemque in diminutionem. Intra quatuordecem autem partes ſemper occultam eſſe.*

Dodrans is $\frac{3}{4}$ of an hour, *Semiuncia* is $\frac{1}{24}$ part, both together make $\frac{19}{24}$ of an hour: and the ſenſe is, that the Moon when ſhe begins to appear after the *Novilunium,* ſhines $\frac{19}{24}$ of an hour, and proceeds adding ſtill every night the ſame quantity of time for the duration of her ſhining to the full Moon, and then the time of her light decreaſes in the ſame proportion.

Plin. lib. 8. *cap.* 32. ſpeaking of the Moon, *In coitu vero quod Interlunium vocant, cum apparere deſierit, ſupra Terram autem erit quam diu & Sol, interlunio & prima tota die, ſecunda horæ noctis unius dextante Sicilico: ac deinde tertia uſque ad quintam decimam, multiplicatis horarum iiſdem portionibus: quintâ decimâ tota ſupra Terras noctu erit, eademque ſub terris tota die; decima ſexta ad primæ horæ nocturnæ ſextantem Sicilicum ſub terra agit, ejuſdemque portiones horarum per ſingulos dies adiicit uſque ad interlunium, & quantum primis partibus noctis detraxerit quod ſub terris agat, tantundem noviſſimis ex die adjiciet ſuper terram.*

3 Which

Which paſſage is eaſily underſtood, when the Reader remembers that the *dextans horæ* is 10 Ounces, or $\frac{5}{6}$ of an hour: and that a *Sicilicus* $\frac{1}{4}$ of an Ounce or $\frac{1}{48}$ of an Hour. So that the whole time makes $\frac{41}{48}$ of an Hour. This is the ſenſe of theſe paſſages, without entering into the *Aſtronomy* of them.

The *Romans* divided their natural day into the following parts.

The firſt they called *Mediæ noctis inclinatio.*

Second, *Gallicinium,* or Cock-crow.

Third, *Conticinium,* or when the Cocks left off crowing.

Fourth, *Diluculum,* or Day-break.

Fifth, *Mane,* when it grew clear,

Sixth, From the Morning to Noon.

Seventh, *Tempus occiduum,* or Afternoon, which is ſometimes called *ſuprema tempeſtas,* which ended at Sun-ſetting.

Eighth, *Veſpera,* ſo called from *Heſperus* the Evening-ſtar.

Ninth, *prima fax,*

Tenth, *Concubia.*

Eleventh, *Intempeſta,* becauſe it was a time unfit for buſineſs.

The Ancients likewiſe divided their night into four parts, called φυλακαὶ, *vigiliæ,* Watches, often mention'd in the new *Teſtament.* In the *Roman* Camps they were called *Vigiliæ Caſtrenſes*; they muſt have been unequal, according to the inequality of the Nights.

CHAP.

CHAP. IX.

Of Measures of Capacity.

ROMAN.

THE *Romans* have given the proportions of their Measures of Length, Measures of Capacity, and Weights, so exactly, that one being given it is easy to determine the other two. Thus from the *Pes* being known, the *Congius* is determin'd, because the *Amphora*, which contain'd 8 *Congii*, was the Cube of a *Pes* or Foot. The *Congius* it self the Cube of half a Foot. So that it is plain the quantity of the *Amphora* or *Congius* being given, that of the Root or Side must be so likewise. The weight of Rain-water contain'd in a *Congius* was 10 *Roman* pounds, and that of the *Amphora* 80: so that from the Measure of the *Congius* or *Amphora*, the quantity of their Pound, Ounce or *Denarius* is likewise known. But it happens from the want of accurateness in experiments, or perhaps even in the first original framer of these models, that in comparing the Measures of Lengths and Capacity and Weights together, and assuming one as the Standard, the others will come out with some small difference.

The *Pes* already settled is equal to 11,604 Inches, its Cube 1562,5112 gives the content of the *Amphora* in solid Inches; and divided by 8 gives 159,3139 Inches for that of the *Congius*.

According to the Experiment of *Villalpandus*, the *Congius* of *Vespasian* weighs in water 52560 Grains *Troy*. In order to reduce this to solid Inches, it's known by experiment that a Cubical *English* Foot of Rain-water weighs exactly 76 pounds *Troy*: or reducing the foot to Inches, and the Pound to Grains, 1728 solid Inches weigh

76

76×5760 Grains, which numbers being divided by their common Diviſor 576, it appears that 3 ſolid Inches of Rain water weigh 760 Grains *Troy*. Hence the weight of the *Congius* being 52560 Grains, it's content is found by the following proportion; As 760 Grains are to 52560 Grains, ſo are 3 ſolid Inches to 207,4737 the content of the *Congius* in ſolid Inches: which exceeds that deduced from the *Pes* by 12,1598; and would make the Foot 11,84 Inches, differing from that in the Tables near one fifth of an Inch, which make a great difference in the Cubes. But as the learned Biſhop, ſo often quoted, obſerves, the *Romans* in all appearance began their concave Meaſure not from any length before eſtabliſh'd; but rather from the Weight of the contain'd liquor, by which thoſe veſſels are alſo deſcrib'd. For had they primarily erected the Cube of a Foot for their principal Concave, and then Geometrically taken its Suboctave the *Congius*, from the Cube of half a Foot; they would not have fail'd to proceed lower in like manner, and to divide the *Congius* into 8 parts inſtead of Six; each of which leſſer Meaſures, would have been regularly the Cube of a quarter Foot, their well known Palm. This is the courſe that has been taken for our *Gallon*, which comes in the place of a *Congius*, and has the *Pint* for its Suboctave. This conſideration may well ſerve to prove that the Cubical relation of the *Amphora* to a Foot, and of a *Congius* to half a Foot, was incidental only, and not primarily deſigned, tho' afterwards the *Amphora* was deſcrib'd by their Authors by the length of the ſide of the Cube. As by *Rhemnius Fannius* thus,

Pes longo ſpatio latoque notetur in anglo,
Angulus ut par ſit, quem claudit linea triplex,
Quatuor ex quadris medium cingatur inane,
Amphora ſit Cubus.

which is thus to be interpreted, *Amphora ſic formatur, ut ejus capacitas lineas quatuor habeat rectas æquales, pedem longas, quatuor angu-*

los rectos, in quorum quemque tres lineæ longa lata & alta conveniunt; efficiaturque figura Quadrata, quam Græci κύβον hoc est, Cubum vocant.

Therefore preserving the Analogy of the *Congius* with the weight of the *Roman* Pound already settled, at 5245 ¾ Grains *Troy*, which multiplied by 10 produces 52457 ½ Grains, the Weight of the *Congius*: this multiplied by 3, and divided by 760, gives 207,0676 solid Inches, which is the content of the *Congius* in the Tables, and differs from the capacity arising from *Villalpandus*'s experiment by less than half a solid Inch. Experiments of weighing water are very nice; the same quantity of water in the Winter weighed 474 Grains, in the Summer only 470, according to a Tryal of M. *Homberg*'s

A vessel holding the 6th part of a *Congius*, or ⅙ of a *Roman* Pound, *i. e.* 20 Ounces, was the *Sextarius*; the half of that a *Hemina*; the quarter of 5 Ounces, a *quartarius*; and the 12th a *Cyathus*; according to the distribution of *Volusius Mætianus* a celebrated Lawyer, with whom the more ancient Authors likewise agree. I must not here omit the proof of the proportions above-mention'd, which is plain from the following *plebiscitum* of the two *Silii* printed in *Greaves*, and to be seen in the best editions of *Sextus Pompeius de sig. verb.*

VTI. QAVDRANTAL. VINI. OCTOGINTA. PONDO SIET.
CONGIVS. VINI. DECEM. IS. SIET.
SEX. SEXTARII. CONGIVS. SIENT. VINI.
DVO. DE. QVINQAGINTA. SEXTARII. QAVDRANTAL. SIENT. VINI.
SEXTARIVS. ÆQVVS. ÆQVO. CVM. LIBRARIO. SIET.

The *Congius* of *Vespasian* still extant, is marked with the following letters P. X. which denote *Pondo Decem.*

The greatest Measure among the *Romans* of liquid things was the *Culeus*, or *Culleus* containing 20 *Amphoræ*. *Rhemnius Fannius*,

> *Est & his decies quem conficit Amphora nostris*
> *Culeus: hoc nulla est major mensura liquoris.*

For *nostris* undoubtedly it should be read *nostra*. [a] *Plin. lib.* 14. *cap.* 4. interprets seven *Culei* 140 *Amphoræ*. When, saith he, oftentimes each Acre will yield seven *Culei* of wine, that is 140 *Amphoræ*. A *Culeus* likewise contains 40 *Roman Urns*, an *Urn* being the half of the *Amphora*.

Columella lib. 3. *cap.* 3. reckons the *Culeus* of Wine at the Vineyard worth 300 *Nummi* or 75 *Denarii*, that is according to *English* rate 143 Gallons, $3\frac{1}{2}$ Pints, for 2 *l.* 8 *s.* $5\frac{1}{4}$*d.* which is about a half Penny the Pint.

The *Culeus* likewise contain'd 160 *Congii*, or 960 *Sextarii*. We read of *Dolia Culearia* and *Sesquiculearia*. *Dolia Sesquiculearia* must have been very large, being about $3\frac{1}{2}$ Hogsheads, and so therefore larger than our Pipes. [b] *Culeus* signifies sometimes a leathern Sack.

Amphora is a *Greek* word ἀμφιφορεὺς, *Iliad.* 23. *Odyss.* 9. by a *Syncope* ἀμφορεὺς, it is so called from the two *Ansæ* or handles for carriage. It is the 20th part of the *Culeus*, as we said before.

Quadrantal signifies the same thing as *Amphora*, so called, as *Festus Pompeius* saith, from the content of it; being the Square, as he calls it, or rather the Cube of a Foot. *Quadrantal vocabant antiqui quam ex Græco Amphoram dicunt: quod vas pedis quadrati, quadraginta octo sextarios capit.*

Ceramium, Κεράμιον, signified also an *Amphora*, so called as being a Vessel of earthen ware. *Dioscorides lib.* 5.

[c] *Cadus* was another word for *Amphora*, us'd by *Columella*. It was sometimes likewise called μετρητὴς Ἰταλικὸς, to distinguish it from

M 2 the

[a] Quando & postea sæpe numero septenos culleos singula jugera, hoc est, amphoras centenas quadragenas musti dedere. [b] l. 43. ff. de Pignor. act. Titius pecuniam mutuam accepit a C. Seio sub Pignore Culleorum: istos Culleos cum Seius in horreo haberet, missus ex officio annonæ, centurio culleos ad Annonam transtulit. [c] Si in vetustatem servare voles, cado duarum urnarum quam optimi vini Sextarium addito.

the *Atticus. Dioscor. lib. 5. cap. de vino Scillitico.* There was a Model of the *Amphora* kept in the Capitol dedicated to *Jupiter,* called the *Amphora Capitolina. Rhem. Fannius,*

> ————— *Quam ne violare liceret,*
> *Sacravere Jovi Tarpeio in monte Quirites.*

Cato de re rustica cap. 57. speaking of the allowance of wine for a family, makes it 10 *Quadrantalia* or *Amphoræ per* man a year, that is about 71 Gallons, 8 Pints; which is above a Pint and a half a day.

Urna, ab urinando, according to *Varro, quod in aqua haurienda urinat, hoc est mergitur ut urinator.* It is the 40th part of the *Culeus,* and the half of the *Amphora*: *Columella lib.* 3. *cap.* 3. *Volusius Mætianus. Columella ibid.* speaks of Vineyards that yielded 600 *Urnæ* the *Jugerum*: this is at the rate of above 54½ Hogsheads to one of our Acres.

Congius was the 8th part of the *Amphora,* and 4th of the *Urna*; it held 6 *Sextarii*; which were therefore so called according to *Cato* and *Galen.* The *Congius* in *English* Measure contains 207,0676 solid Inches, that is 7 Pints, 4,942 solid Inches.

Pliny lib. 14. *cap.* 22. relates how *Tergilla* objected to *Cicero's* son, that he was used to drink two *Congii* of Wine at a draught, for which he was called *Bicongius*: two *Congii* make above seven Quarts. The same Author tells you that *Novellus Torquatus* a *Milanese* in presence of the Emperor *Tiberius* drank off at once three *Congii,* or 2 Gallons, 6½ Pints, from whence he was called *Tricongius*: which are incredible stories.

* *Cato* during the time of the *Saturnalia* and *Compitalia* allowed each of his Servants *per* day a *Congius* of Wine, or 7 Pints, 4,942 Inches.

> *Narratur & prisci Catonis*
> *Sæpe mero caluisse virtus.* Hor.

From

* Cato de re rustica cap. 57. Saturnalibus & Compitalibus in singulos homines Congios.

From *Congius* comes *Congiarium*, which ſignifies a gift that the Emperors and Magiſtrates of *Rome* uſed to give to their friends, or to the people on certain occaſions: it was ſo called becauſe at firſt a *Congius* of Wine or Oyl was given to every one: the ſame name remain'd after, when thoſe gifts were given in money: whereof there are ſeveral inſtances in this Book. [d] *Ancus Martius* gave 6000 *Modia* of Salt, or 188 Quarters, 5 Pecks, as a *Congiarium* to the people.

Pliny lib. 14. *c.* 14. writes that when *Lucullus* return'd from *Aſia*, *millia cadorum congiarium diviſit amplius centum*. *Budæus* reads *congiariorum* for *congiarium*, and thinks that *cadorum congiariorum* ſignifies *Cadi* of the capacity of a *Congius*, or ſix *Sextarii*. But *G. Agricola* underſtands *Congiarium Cadorum*, a *Congiary* of ſo many *Cadi*, which *Lucullus* diſtributed among the people, taking *Cadus* for a certain Meaſure of it ſelf.

[e] *Quintilian* tells that *Auguſtus*'s *Congiaria*, for their ſmalneſs were called *Heminaria*, alluding to the meaſure *Hemina*, which is one twelfth of the *Congius*; but this cannot be underſtood of all of them.

The gifts of the Emperors to the Soldiers were called *Donativa*. *Suetonius* talking of *Nero*, ſaith, *Populo congiarium, militi donativum propoſuit*. At the Triumph of *Metellus*, Wine was ſold for an *As* the *Congius*, which comes to little more than 3 farthings the Gallon.

From *Congius* comes *congialis*, uſed by *Plautus*: as *Fidelia Congialis*: it ſignifies a veſſel holding a *Congius*.

Sextarius was a Meaſure not only of liquid, but of dry things. There was a *Sextarius Caſtrenſis*, as well as *Urbicus*, of a different Meaſure.

The *Sextarius Urbicus* for Liquids was the 48th part of the *Amphora*, the 24th of the *Urna*, the 6th part of the *Congius*, from

d Plin. lib. 31. cap. 7. Ancus Martius IV. Rex Rom. Salis modia ſex millia in congiario dedit populo. e Lib. 6. cap. 4. Fabius Maximus incuſans Auguſti congiariorum, quæ amicis dabantur, exiguitatem, heminaria eſſe dixit. Nam congiarium cum ſit commune liberalitatis atque menſuræ, à menſura ducta imminutio eſt rerum.

from whence it had its name. This *Sextarius* is divided into two *Heminæ* or *Cotylæ*, according to the verses of *Rhemnius Fannius*,

At Cotylas, quas si placeat dixisse licebit
Heminas, recipit geminas Sextarius unus.

It is likewise divided into four *Quartarii*, which are the half of a *Hemina*, as appears from *Volusius Mætianus*. It is called *Quartarius* with respect to the *Sextarius*, whose 4th part it is. A *Sextarius* is also divided into 8 *Acetabula*, according to *Pliny lib.* 21. *cap. ultimo*.

The parts of the *Sextarius* were like those of the *As*; *Uncia, Sextans, Quadrans, Triens, Quincunx, Semis, Septunx, Bes, Dodrans, Dextans, Deunx*; by which words a certain number of *Cyathi* is meant, a *Cyathus* being one 12th of the *Sextarius*.

It was a custom among the Ancients at their entertainments, to drink as many *Cyathi* to the health of their friend or mistress, as there were letters in their name. *Mart. lib.* 1.

Nævia sex Cyathis: septem Justina bibatur:
Quinque Lycas: Lyde quatuor: Ida tribus:
Omnis ab infuso numeretur amica Falerno.

And *lib.* 5. *Mart.*

Sextantes, Calliste, duos infunde Falerni.

Two *Sextantes* were ⅓ of a *Sextarius*, or 4 *Cyathi*. According to *Cornelius Nepos*, *Augustus Cæsar*'s highest debauch in Wine was six *Sextantes*, that is a *Sextarius*, or a little above our Pint: which he was not able to exceed without vomiting.

The *Sextarius Castrensis* was double of the *Urbicus*, which *Agricola* infers from a passage of St. *Jerome* upon *Ezekiel*. This *Sextarius Castrensis* may have occasion'd the expression of a Soldier's Bottle.

Hemina

Hemina the half of the *Sextarius.* (*Aulus Gellius lib.* 3. *cap.* 14.) It contains two *Quartarii*, 4 *Acetabula*, 6 *Cyathi*, 24 *Ligulæ*: as appears from *Volusius Mætianus.* The *Greeks* sometimes use *Hemina*, adding ῥωμαϊκὴ or ἰταλική.

Quartarius, the fourth part of the *Sextarius*, as was said before.

Acetabulum, the half of the *Quartarius*, was first so called from *Acetum*, in imitation of the *Greeks*, by whom it is called ὀξύβαφος and ὀξύβαφον, because it was first us'd for holding Sauce for meat; and afterwards became a certain measure of liquids.

Cyathus, the 12th part of the *Sextarius*, is a *Greek* word coming from χύειν, *fundere.*

Ligula, likewise called *Lingua*, first signified a Spoon, but afterwards the *Latin* Physicians came to use it as a measure, containing one 48th of the *Sextarius*. *Columella lib.* 12. *cap.* 21. saith it was the fourth part of the *Cyathus.*

Cochlear, *Cochleare* and *Cochlearium* often denote a Spoon, and sometimes a Measure equal to the *Ligula*. They are us'd by *Pliny* and *Columella.*

There was also amongst the *Romans* a *Libra mensuralis*, which the *Greeks* called λίτρα μετρικὴ, and distinguished from the λίτρα σαθμικὴ or the *libra-ponderalis.* This consisted of 12 Ounces, and was divided likewise as the *As*. It was made commonly of horn, and divided by 12 lines, marking the Ounces, from whence it was called by *Galen* κέρας μετρᾶιον, *cornu mensurale.* According to *Galen lib.* 6. *de compos. Medicament.* this *Libra mensuralis* weighed 10 Ounces of Oyl, and of Wine 11 Ounces, 2 Scruples, 1 *Obolus*, and 1 *Siliqua*, according to the ponderal *Libra*. The Ancients all along suppos'd the weight of Oyl to be to that of Wine, as 9 to 10, which tho' it differs from our proportion, might be true in a warmer Country, the warmth of the Air expanding Oyl more than Wine. This proportion of the specifical gravity of those two liquors holds in this computation; for 11 Ounces, 2 Scruples, 1 *Obolus*, 1 *Siliqua* make 1600 *Siliquæ*; and 10 Ounces make 1440 *Siliquæ*; and dividing both by 160 makes it as 9 to 10. According

cording to this weight of Wine assign'd by *Galen*, the *Libra mensuralis* contain'd 19,085 solid Inches, somewhat less than ? of our Pint, Wine measure. But the *Roman* Measures varying, in all appearance this originally was design'd to contain 12 ponderal Ounces of water, according to which weight it would be equal to 20,612 solid Inches, the difference between the two being only 1,527 solid Inches.

Of Roman *Measures of Capacity for things dry.*

MOdius, and sometimes in *Pliny Modium*, deriv'd from *modus*, was a Measure for things dry. It was the third part of the *Amphora* or *Quadrantal*, according to *Volusius Mætianus*. As the *Modius* was the third part of the *Amphora*, so the *Amphora* was one half of the *Medimnus*. *Rhemnius Fannius* speaking of the *Amphora*

Hujus dimidium fert Urna, & ipsa Medimni
Amphora, terque capit Modium: Sextarius istum
Sexdecies haurit.

Pliny speaking of the value of several sorts of Wheat *lib.* 18. *c.* 7. says the *Gallick* Wheat and that from the *Chersonesus* was the lightest, not exceeding 20 *Libræ* the *Modius*. The *Sardum* was a *Selibra*, or half a pound heavier; the *Alexandrian* and *Sicilian* Wheat added *trientes*, or four Ounces more, that is, weighed 20 Pounds and 10 Ounces. The *Bœotian* an entire Pound, being in all 21 Pounds. The *African* added to that a *Dodrans*, or in all 21 Pounds, 9 Ounces. According to this Account of *Pliny's*, the Weights of the Wheat stood as follows,

Modius	*Gallican*----	240	*Roman* Ounces.
	Sardum----	246	
	Alexandrian--	250	
	Bœotian---	252	
	African---	261	

In

TREVANDRUM PUBLIC L

In *English* Measure and Weight thus;

Peck of Wheat	Ounces *Troy*	Pounds	Ounces.
Gallican	218,517	18	2 ½
Sardum	223,979	18	8
Alexandrian	227,621	18	11 ½
Bœotian	229,442	19	1 ⅘
African	237,637	19	9 ⅔

According to a Table of Sir *Jonas Moor's*, a Peck of *English* Wheat weighs 204,884 Ounces, or, 17 *lb.* 1 *oz.*

The lightest Grain in the former account weighs above one 18th part more than *English* Wheat. The *Gallican* Wheat was that of the southern parts of *Gaul*, and I believe the same proportion would answer observation at this day. All which is to be understood at a *medium*, for the weight of grain differs very much in different years.

I have been more particular in the account of this experiment of *Pliny*, because it shews that the Measure of the *Roman Modius* is calculated pretty true, tho' by some Writers it is reckon'd an uncertain Measure. There are *Trimodia* and *Decemmodia*, rustick Vessels. *Colum. lib.* 12. *cap.* 18. *&* 5.

Cato speaking of the allowance to Servants, gives it as follows. *Familiæ cibaria; qui opus facient per hyemem tritici modios quaternos, per æstatem quaternos semis: Villico, Villicæ, Epistatæ, Opilioni modios Ternos: Compeditis per hyemem panis pondo quaterna: ubi vineam fodere cæperint, panis pondo quina, usque adeo dum ficus esse cæperint: deinde ad panes quaternos redito.*

This allowance of four or five *Modii* of Wheat which is somewhat more than so many of our Pecks, must be supposed monthly, for *Donatus* in *Phormionem Terentianum* informs us that the monthly Allowance of Servants was four *Modii*: from whence it was called *Demensum* either from *Mensis* or *demetiendo*: which is a word used by *Terence*, as follows, *Quod ille unciatim vix de Demenso suo, suum defraudans genium comparsit miser, id illa universum abripiet, haud*

existimans quanto labore sit partum. It is to be obſerved that the *Bayliff, Reive* and *Shepherd*, had leſs allowance of Wheat than the reſt, but it is to be preſum'd they had beſides their Wheat other proviſions given them which the inferior ſervants had not. As for the four or five *Pondo* of Bread which the *Compedites* had, it's not certain what time it was to ſerve them.

It will afford ſome light in the analogy of their Meaſures ſuperficial and of Capacity, as well as in their Husbandry, if we take notice what quantity of ſeed of ſeveral grains they us'd to ſow in a given quantity of ground; which according to * *Pliny* was

5 *Modii* of Wheat	}	to the *Jugerum*.
6 *Modii* of Barley		
6 *Modii* of Beans		
3 *Modii* of Peaſe		

Which in *Engliſh* Meaſure is

Buſh.		Pecks.		
2	- - - -	0 5/7	Wheat	*per* Acre.
2	- - - -	1 5/6	Barley	
2	- - - -	1 5/6	Beans	
1	- - - -	0 11/15	Peaſe	

There are ſeveral other Grains mention'd in that Chapter, but this is ſufficient for a proof.

Semimodius, or the half *Modius* containing 8 *Sextarii*, is mention'd by *Cicero, Varro* and others.

Sextarius was likewiſe us'd as a Meaſure of dry things: as in *Palladius*: *Triginta columbis volantibus diurni tres Sextarii tritici ſufficiunt.*

Hemina is a meaſure of things dry in *Cato, Columella* and *Palladius.*

Quartarius,

* Plin. lib. 18. cap. 24. Serere in jugera temperato ſolo juſtum eſt, tritici aut ſiliginis Modios V. ---Hordei VI. Fabæ quintam partem amplius quam Tritici ---- Piſi III.

Quartarius, *Pliny* uſes as a Meaſure of things dry. *lib.* 18. *c.* 43. And ſo were *Acetabulum*, *Cyathus* and *Ligula*, whoſe capacities and proportions to one another, are already given in the chapter of liquid Meaſures.

Varro and *Pliny* mention *Concha* as a Meaſure for things Dry. *Cleopatra* ſaith it was of two ſorts, the leſſer was equal to one half *oxybaphum*; and the greater to an *oxybathum* and a half.

GREEK *Meaſures of Capacity.*

IN reducing the *Greek* ſolid Meaſures to the *Engliſh* I ſhall make uſe of the χȣ̃ς, which made in Weight 720 *Drachms* according to all Authors, ſuppoſe of Rain-water, the Anients making no difference betwixt the weight of that and Wine. Taking the heavieſt *Attick Drachm*, which is the hundredth part of the old *Attick Mina* or our *Averdupois* Pound, and neglecting the ſmall difference in the Tables, I ſhall ſtate it at 70 Grains *Troy*. According to this *Drachm*, the weight of the *Attick* χȣ̃ς muſt be 50400 Grains. There are in a ſolid Foot 1728 ſolid Inches, weighing 76 Pound of Rain-water: by this Experiment, 760 Grains make 3 ſolid Inches, therefore 50400 make 198,94737 ſolid Inches, the number of ſolid Inches in the χȣ̃ς; which is 6 Pints, 25,698 ſolid Inches, ſomewhat leſs than the *Roman Congius*, tho' the *Greek* χȣ̃ς and the *Roman Congius* are uſed indifferently as the ſame Meaſure by ancient Authors; as likewiſe are the 6th part of them, the ξέςης and *Sextarius*, and the 12th, the κοτύλη and the *Hemina*. There is great probability that the *Greeks* meaſured the capacity of their veſſels by the weight of Oyl, the product of their Country. For the Phyſicians ſpeaking of thoſe Meaſures always mention their weight in Oyl; and *Galen* ſpeaking of the *Cotyla*, ſaith that *Heras* underſtood the *Cotyla* to be of 60 *Drachms*, reducing the weight to Oyl. *Galen lib.* 5. *de compoſ. Medicam.* I find likewiſe that it is a general Suppoſition among the Ancients, that the weight of

Oyl was to that of Wine as 9 to 10; so in the fragment printed after *Galen* of the *Composition of Medicines*, 72 Pounds of Oyl is made equal in bulk to 80 Pounds of Wine, 9 Pounds of Oyl to 10 Pounds of Wine, and so every where. According to our experiments the weight of Oyl is to that of Wine or fresh water as 476 to 527, which is very near as 9 to 9,96. So small a difference, as we observ'd before, may be accounted for, by the Oyl weighing less in a warm country than in ours: for warm Air expands Oyl more than water. If we were to make a χῦς from holding 720 *Drachms* or 70 *Troy* Grains of Oyl, upon this supposition of the specifick weight of Oyl being to that of water, as 9 to 10, it would be much larger than the *Roman Congius*, the contrary of which is known. But if they settled their χῦς by the weight of Oyl, it must have been by a *Drachma* of 63 Grains, very near such as that of the Tables.

The largest *Greek* Measure for things liquid was the *Attick* μετρητὴς of the masculine gender, (tho' *Cato* and *Columella* use *Metreta* feminine) μετρητὴς ἔχει ξέστας οβ', that is, the *Metretes* is 72 ξέστας, *apud Nicandri interpretem. Dioscorides de vino veratro*, saith ἔστι δὲ ὁ μετρητὴς χόες ι', that is to say, it contains 10 χόες. Some approve of this reading: But *Alciatus* and *G. Agricola*, instead of χόες ι', read χόες ιβ'. So that it contain'd 12, which is confirmed by *Epiphanius*, *Cleopatra* and *Galen*. *Rhemnius Fannius* makes the *Metretes* ½ of the *Amphora*, in these verses,

Attica præterea dicenda est Amphora nobis,
Seu Cadus; hunc facies, nostræ si addideris Urnam.

But this is true only on supposition that χῦς and *Congius* were precisely equal, whereas they were but nearly so. *Metretes* is called ἀμφορεὺς in *Pollux*, but ἀττικὸς is to be understood, to distinguish it from the *Roman*. *Dioscorides lib.* 5. uses μετρητὴς ἰταλικὸς for the *Roman Amphora*.

Κάδος

Κάδος comes perhaps from χαδεῖν, which signifies to contain, or from the *Hebrew Cad*, a Measure mention'd in the Bible, and translated ὑδρία by the LXX. It was a Measure equal to the *Metretes*. For what *Dioscorides* lib. 5. calls μετρητὴν γλεύκους; *Pliny lib.* 14. *cap.* 16. renders *Cadum musti*. It is sometimes writ with a double δ; as in *Pollux lib.* 9. where he tells that ἀμφορεὺς was called κάδδος by the Ancients. And the same Author relates from *Philochorus* that ἡμιαμφόριον esse ἡμικάδδιον. From κάδος comes κάδιχος and κάδδιχος, as *Congialis* from *Congius*.

Julius Cæsar at his Triumphal Supper, according to *Pliny*, *lib.* 14. *cap.* 15. gave 100 *Cadi* of *Chios* Wine, that is 4 Tuns, 25 ½ Gallons.

The same Author saith *lib.* 14. *cap.* 15. that *Hortensius* left to his heir 10000 *Cadi* of Wine, that is 410 Tuns, and 28 Gallons.

L. Lucullus gave a *Congiary* of 100000 *Cadi*, or 4101 Tuns, 44 Gallons.

Cadus was called κεράμιον. *Hesychius* saith κάδος ἐστὶ κεράμιον. In several printed books *Ceraunium* is put erroneously for *Ceramium*.

Hesychius saith κεράμιον τοῦ οἴνου ἢ ὕδατος σαμνίον. So *Cadus* and *Stamnium* are the same.

Suidas makes a difference betwixt χοῦς and χοεὺς, when he saith χοῦς δύο ξέσαι, χοεὺς δὲ ἕξ. But all other Authors make them the same. The *Greek* Physicians sometimes use χοῦς for the *Roman Congius*, the difference being but small.

Athenæus relates that *Milo* a *Crotoniate* drank at once 3 *Choæ* of Wine, which is about 2 Gallons, five Pints.

The same Author saith that *Alexander* after he had drank up a Cup of 2 *Choæ* (or 14 Pints) and was going to take another, he fell ill and dyed.

Choes were certain Festivals at *Athens*, so called because every one had a *Chus* of Wine given him, according to *Suidas*. And *Athenæus* says that *Demophoon* King of *Athens* promised the reward of a sweet Cake, and *Dionysius* the Tyrant a Crown of Gold, to the

the first man who drank a χȣ̃ς (or 7 pints) in those holidays: which was a very barbarous thing among such polite people as the *Athenians*.

The χȣ̃ς contain'd 12 *Cotylæ* according to *Cleopatra*, ὁ χȣ̃ς ἔχει μέτρῳ μὲν κοτύλας ἀττικὰς δώδεκα. The same is confirm'd by others. And *Athenæus lib.* 11. saith that λάγυνος contain'd the same number of *Cotylæ*. So it was equal to the χȣ̃ς. It is sometimes us'd in the neutral gender as λάγυνον, and sometimes it is called λαγήνον: which some translate *lagena*.

As the *Romans* borrowed the name of the *Congius* from the *Greek* χȣ̃ς, so did the *Grecians* in later times borrow the ξέϛης from the *Roman Sextarius*. It was the 6th part of the χȣ̃ς; as appears from *Galen* and others.

Κοτύλη, so called from its Cavity. *Athenæus lib.* 19. πᾶν τὸ κοῖλον κοτύλην ἐκάλȣν οἱ παλαιοὶ, *i. e.* the Ancients called every concave thing κοτύλη. The same Author saith likewise κοτύλη ἣ καλεῖται κ̀ ἡ τȣ̃ ἰσχίȣ κοιλότης; that is, the Cavity of the *Coxendix* is called *Cotyla*. There were, according to *Galen*, several *Cotylæ*, such as the *Alexandrian* and *Ephesian*: but the *Attick Cotyla* was one half of the ξέϛης. *Interpres Aristoph. in Plutum*, saith κοτύλη ἣ ἐϛὶν εἶδος μέτρȣ, ὃ λέγομεν ἡμεῖς ἡμίξεϛον; *i. e.* the *Cotyle* is a Measure which we call a half ξέϛης. *Rhemnius Fannius*,

At Cotylas, quas, si placeat, dixisse licebit
Heminas: recipit geminas Sextarius unus.

From κοτύλη comes τρικοτύλος οἶνος in *Hesychius*, which signifies as much wine as three κοτύλαι hold.

Τρυβλίον was the same Measure as the κοτύλη, as appears by *Cleopatra* and *Galen*.

Οξύβαφον was a Measure answering to the *Roman Acetabulum*. *Plin. lib.* 15. *cap. ult.* saith it was the fourth part of the *Hemina*. *Hesychius* saith it was called αἰς, ἅλις, βάφιον, and γάβενον.

Κύαθος

Κύαθος was the 12th part of the ξέϛης, according to *Epiphanius* and others: from thence comes κυαθίζειν, *cyathissare*, which *Plautus* uses in *Menæchmis*; it signifies to fill drink to one, or serve one at drinking. *Suetonius* likewise uses this word *Cyathissare*.

Κόγχη, or *Concha*, has its name from a Shell: there were a greater and a less; according to *Cato cap.* 13. *de re Rust.* But it appears from these words of *Pliny lib.* 12. *cap.* 25. *Alexandro M. res ibi gerente, toto die æstivo, unam concham impleri, justum erat*; that it was a certain Measure. *Cleopatra* says that the greater *Concha* was equal to the *Oxybaphum*, and the lesser to one half of the *Cyathus*.

Μύϛρον, and sometimes μύϛλον, is so called from μῦς, a Mouse. *Aristotle* saith the sea-mouse was a shell-fish; and from it probably this Measure is so called. *Cleopatra* relates that of this Measure there were two kinds, the greater which was the 16th part of the *Cotyla*; and the lesser the 4th part of the *Cyathus*. ὁ κύαθος ἔχει μικρὰ μύϛρα τέσσαρα. The greater *Mystrum* was called *Georgicum*: as being only a Rustick Measure. *Mystrum* is called βάϛβος by *Hesychius*.

Χήμη was a Measure, having also its name from a Shell-fish. There was the greater or Rustick *Cheme*, the 20th part of the *Cotyla*: but the lesser, which the Physicians used, was the 30th part of the *Cotyla*. This appears from *Cleopatra*.

Κοχλιάριον, in *latin Cochlear*, was the smallest Measure for liquids, it is equal to one half of the *Cheme*. *Rhemnius Fannius*,

> - - - - - - - - *At tertia Mystri*
> *Quam vocitant Chemen, capit hæc Cochlearia bina.*

GREEK

GREEK *Measures of things dry.*

MEδιμνος, or μέδιμνον in the neuter gender, the *Greeks* commonly used it with the acute Accent on the *antepenultima*: but the *Athenians* writ it μεδίμνος, with the accent on the *penultima.* It was a Measure for dry things, such as Wheat, Barley, Flower, *&c.* and contain'd 48 *Chœnices* according to *Pollux, Harpocration,* and *Galen de mensuris.* But this here is meant of the *Attick Medimnus*: for there was likewise the *Georgicus, Macedonicus, Siculus, Cyprius, &c.*

Suidas mentions the following proverb: μεδίμνῳ ἀπομετρῶ τὰ τοῦ πατρὸς ἀργύριον, *h. e.* I measure the money my Father leaves me by a *Medimnus*: (with a Bushel.) Which is the same as one should say, that he had a great fortune left him.

Χοῖνιξ or *Chœnix* is a dry Measure containing 3 *Cotylæ* according to *Cleopatra*: and so was 1½ of the ξέστης; which already is shewn to be 33,158 solid Inches: this number multiplied by ½ gives 49,737 solid Inches equal, to the *Chœnix*; which again multiplied by 48, gives the *Medimnus* 2387,376 Inches, that is 4 Pecks, 6 Pints, 3,501 Cubick Inches.

The ξέστης, κοτύλη, ὀξύβαφον, κύαθος, and κοχλιάριον, were also us'd as Measures for things dry; their capacity and proportion to one another is the same as when they are Measures for liquids, which have been shown already.

The JEWISH *Measures of Capacity.*

IN determining the capacity of the *Jewish* solid Measures I have followed Dr. *Cumberland* in the Tables formerly published. There is a greater difference between the *Rabbins* and *Josephus* in the account of the *Jewish* Measures of Capacity, than in that of their Weights and Coins. However we shall not so positively adhere to

to the one or the other, as to omit giving the Objections and Arguments on both sides. Dr. *Cumberland* takes the *Ephah* to be the 6th part of the Cube of the *Jewish* or *Ægyptian* Cubit, which Cube is called *Ardub.* The *Ægyptian* Cubit is according to him 21,888 Inches, and its Cube 10486,2, whose sixth part is 1747,7 solid Inches equal to the *Ephah*. That the *Ephah* was the 6th part of the Cube of the *Ægyptian* Cubit, the Bishop proves from the accounts of the *Arabian Mathematicians*, in which by an usual commutation of the quiescent letters it is called *Oeba* or *Waiba*, which last word is us'd in the *Arabian* translation to express *Ephah.*

According to *Golius*, at *Babylon* the *Ardub* was equal to six *Ephahs*, and this proportion was generally acknowledg'd in the Eastern Countries. He observes that 1747.7 solid Inches differ very little from 1728, the Cubick Inches of an *English* Foot. The neglect of a few centesimals in the side of the Cube would bring it to an equality with the Cube of a Foot.

The Bishop observes likewise that his *Ephah* or 1747,7 Cubick Inches contains 1000 Ounces of pure Rain-water; this is not true, supposing the nicest proportion that the *Averdupois* Pound has to the *Troy* is that of 175 to 144; tho' that in the Tables be only as 17 to 14, neglecting the last figures. According to which the *Averdupois* Ounce (whereof there are 16 in the Pound) is to the *Troy* Ounce as 175 is to 192; and 100 Ounces *Averdupois* are equal to 43750 Grains *Troy*, which allowing 760 Grains to a Cubick Inch of Rain-water, make 1726,97 solid Inches: which is exceeded by the Bishop's *Ephah* or 1747,7 by 20,73 solid Inches, above $\frac{2}{3}$ of a Wine-pint. The *Ephah* or 1747,7 solid Inches make of Wine-measure 7 Gallons, 4 Pints, 15,2 solid Inches: and of Corn-measure 3 Pecks, 2 Pints, 32,075 solid Inches.

Josephus lib. 15. *cap.* 11. saith *ὁ κόρος δύναται μεδίμνους ἀττικοὺς δέκα*: whereby it is inferr'd that the *Ephah*, the tenth part of the *Corus*, was equal to the *Medimnus Atticus*: which according to the Tables contains 2354,751 solid Inches: and exceeds the Bishop's *Ephah* by 607,051 solid Inches, which make above a

quarter of the whole Meaſure: and ſeems to be too great a difference to happen by any neglect in the menſuration.

The Biſhop propoſes an Argument drawn from his emendation of the following corrupted paſſage of *Heſychius* οἰφὶ μέτρον Αἰγύπτιον τεσσαραχοίνικον, *h. e.* the *Ephah* an *Ægyptian* Meaſure equal to four *Chœnices*: which is certainly very far from the truth. The Biſhop for τέσσαρα puts ΔΔΔΙΙΙΙ, which ſignify 34, and ſo makes the *Ephah* to be 34 *Chœnices*, which coincides nearly with his determination of it. But this ſeems to be a very weak argument.

Salmaſius in his Epiſtle to *Walæus*, cites an ancient *Anonymous Latin* Author, who affirms that *duo Cori Culleum reddunt*, *h. e.* that two *Cori* are equal to a *Culleus*. A *Culleus* contain'd 20 *Amphoræ*, and a *Corus* 10 *Ephahs*. Therefore according to this paſſage the *Ephah* was equal to the *Roman Amphora*, which, according to the Tables, is 7 Gallons, one Pint, and 10,66 ſolid Inches, or 1656,535 ſolid Inches, which is leſs than 1747,7 Inches by 91,165 ſolid Inches, or above 3 Wine Pints.

Another argument of the Biſhops is, that "*Suidas* in σάτον, "which is the *Hebrew Seah*, affirms it to be the *Roman Modius* fil-"led ſo as to run over its brinks, and that it holds in liquids 15 "*Sextaries* or 25 Pounds." But this is a falſe Meaſure of the *Roman Modius* given by *Suidas*, for it contains 16 *Sextaries*, or 16 Pounds 8 Ounces. The Biſhop adds that "15 *Roman Sextaries* are equal "to 2½ *Congii*, which in ſolid Inches meaſure of water makes "517,66, being 300 Ounces of Weight, but this is leſs than "the 3d part of our *Ephah*, that being 582: ſo there wants above "a Quart of our Wine meaſure. And *Suidas* implicitly confeſſeth "his Meaſure too little, by ſaying it muſt be ὑπερπεπληρωμένον, "heaped up ſo as to run over. But if inſtead of 15 *Sextaries* there be taken a *Modius*, which is 16 *Sextaries*; that heaped up ſo as to run over will come very near the Biſhop's *Seah*, or third part of the *Ephah*.

The

The Bishop proceeds to inform us "that the *Modius* was less "than the *Seah*; *Epiphanius* affirmeth, that it was equal to a *Modius* "and ½, and *Josephus lib.* 9. *c.* 2. and *Hierom*, on *Matth.* xiii. " 33. say, it was an *Italian Modius* and an half.

After giving the mensuration and argumentation of Dr. *Cumberland*, Bishop of *Peterborough*, I think it would not have been fair to have suppress'd those of another Reverend Prelate, who seems to be much better qualify'd than the former to write upon this Subject. There are Tables computed upon both Systems, and the Reader may use which he pleaseth.

JEWISH *Measures for things liquid.*

BATH, so called from Cavity or Capacity, the LXX write it βαίθ. ϗ εἴκοσι χιλιάδας βαίθ ἐλαίȣ. 1 *Kings, cap.* 5.

According to *Josephus lib.* 8. *cap.* 2. it contain'd 72 *Attick Sextarii*, which is different from Bishop *Cumberland*'s Measure in the Tables. The LXX render it sometimes by the word itself, as before; sometimes by μετρητὴς, 2 *Chron. cap.* 4. sometimes by κεράμιον *Isaiah cap.* 5. The ancient *Latin* version translates it *Lagena.* It was the 10th part of the *Chomer* in liquid things, as the *Ephah* was in dry. *Ezekiel* xlv. 11. *The Ephah and the Bath shall be of one Measure, that the Bath may contain the tenth part of an Homer, and the Ephah the tenth part of an Homer.*

Hin likewise a liquid Measure, as of Oyl. *Exod.* 30. *Ezek.* xlv. 46. Of Wine *Exodus* 29. *Levit.* 23. According to *Josephus*, it contain'd two *Attick Congii, lib.* 3. *cap.* 9 *&* 10. Therefore it was the 6th part of the *Ephah*. *Josephus* writes, *lib.* 3. αρχαιολ. that they offered with an Ox the half of a *Hin* of Oyl; or in *English* Measure according to *Josephus* 6 Pints, 25,698 solid Inches, according to the Tables, 5 Pints 1,267 solid Inches. With a Ram they offer'd the third part of a *Hin* or 3, Pints, 10,469 solid Inches. And with a Lamb the 4th part, or 2 Pints, 15,071 solid Inches.

The Prophet *Ezekiel* was commanded to drink water to the quantity of the 6th part of a *Hin*, that is 1 Pint, 19,672 solid Inches.

The LXX render *Hin* falsly χἒν or one *Congius*, *Levit.* 19. and with a much greater difference from the truth, the *Latin* Version renders it *Sextarius*. *Epiphanius* makes a twofold *Hin*, the greater of 18 *Sextarii*, the lesser of 9.

Log, a Measure of liquids, *Levit.* 14. It was the 72d part of the *Bath* or *Ephah*, and the 12th part of the *Hin*, according to all the accounts of the *Jewish* Writers. *Benedictus Arias* upon *Ezekiel* derives *Lagena* from *Log*. The ancient *Latin* version translates it *Sextarius*. And the *Greek* version falsly, *Cotyla*, *Levit.* 14.

The *Cor* or *Chomer*, and with a *Greek* termination *Coros*, it was most commonly a Measure for things dry, and the greatest that was us'd among the *Jews*. As of Barley, *Levit.* 27. of Wheat 1 *Kings* iii. 2. 2 *Chron.* ii. 1. It contain'd according to the *Rabbins* 10 *Ephahs*, and 30 *Sata* or *Seahs*. *Coros* is the more usual term in the historical Writers, and *Chomer* amongst the Prophets.

Josephus lib. 15. *cap.* 11. αρχαιολ. makes the *Coros* equal to 10 *Medimni Attici*, because he makes the *Ephah* equal to one *Medimnus*. The *Jews* were commanded to give the 6th part of an *Ephah* out of the *Homer* of Wheat, *Ezek.* xlv. *Chap.* 13. that is one part out of sixty.

Epiphanius makes the *Coros* equal to 30 *Roman Modii*, and the ancient version renders it the same. *Isaiah* 5. *Levit.* 27. According to which proportion the *Seah* and the *Modius* must be equal. *Benedictus Arias* in *Sata* saith that a piece of ground sowed with a *Coros* of *Barley*, could not be less than 730,000 square Cubits: That is, a piece of Ground sowed with a *Quarter* of Barley could not be less than 55½ Acres, which cannot be true.

The *Comer* contain'd two *Letechs*, *Hosea* 3. The 100 *Cori* of Barley, 1 *Esdras* vii. 3. Or a *Letech* was the half of the *Comer*, and so the ancient Version has it. St. *Ambrose lib.* 9. *Epist.* calls it *Semigomer*.

Ephah

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Ephah was a Measure of things dry, as of Barley, *Ruth* 2. and Meal, *Judges* 6. and *Numbers* 5. and was of the same capacity with the *Bath* in liquids. It contain'd 3 *Sata* or *Seahs*. The *Chaldaic* Paraphrase renders the *Ephah* 3 *Seahs*, the ancient version 3 *Modii*. *Ruth* 2. *Josephus lib.* 9. *cap.* 2. makes the *Seah* equal to 1½ *Italick Modius*, the *Sesquimodius* containing 24 *Sextarii*, which multiplied by 3, makes 72, the Measure of the *Ephah* assign'd by him. The LXX render *Ephah* variously, sometimes by the word it self, οἰφὶ or οἰφεὶ. *Levit.* 5. *Numbers* 15 and 18. *Judges* 6. *Ruth* 2. 1 *Samuel* 1. and 25. Sometimes by the word πέμμα. *Ezek.* 45. So the *Latin* Version has *Ephah* variously translated: as by *Ephi*, a corruption of *Ephah*; and by *Modius*, *Levit.* 19. and sometimes it's render'd 3 *Modii*, *Esai.* 5. *Ruth* 2. sometimes it is confounded with *Satum* or *Seah*: It's render'd *Amphora* by the old version, *Zachar.* 5.

Satum or *Seah* is one of the oldest Measures for dry things, as of Meal, *Gen.* 18. 1 *Kings* 18. 2 *Kings* 7. It was the third part of the *Ephah*.

The LXX render it variously; sometimes by μέτρον in general, *Gen.* 18. sometimes very improperly by μετρητὴς, which is a Measure for liquids, and much larger than a *Seah*; sometimes they render it οἰφί, 1 *Sam.* 25. which contains 3 *Seahs*. And *Hagg.* 2. the LXX has σάτα, whereas in the original there is no particular Measure mention'd.

The old *Latin* Version has *Seah* differently render'd, as by *Satum*, 1 *Sam.* 25. by *Modius*, *Ruth* 3. 1 *Kings* 18. it's translated 2 *aratiunculæ*.

Omer or *Gomor* is a Measure for things dry. *Exod.* 16. *Levit.* 5 and 6. it was the 10th part of the *Ephah*.

The LXX and *Epiphanius* confound this Measure with *Chomer* or *Coron*, (which is a much greater one:) and render them both by γόμος.

Assaron and τὸ δέκατον, signify the same as *Gomor*. *Josephus lib.* 8. calls it ἑσσάρων. In the *Hebrew* instead of *Gomor*, *Assarith* is often us'd, it signifies the 10th part, *viz.* of the *Ephah*. *Josephus*

ſephus lib. 3. ſays that in the time of *Claudius* an *Aſſaron* or *Omer* of Meal was ſold for four *Drachmæ*, that is at the rate of 8 Shillings the Peck: but it was in the time of a dearth.

Cab or *Kab*, and κάβος in *Epiphanius*, in *Latin Cabus*, was the 6th of the *Seah*. *Benedictus Arias* ſaith that a *Cab* of Wheat ſowed 10 ½ ſquare Cubits of Ground, which is at the Rate of 6 Quarters, 7 Buſhels and 1 Peck to the *Engliſh* Acre.

In the Scriptures are alſo found *Nebel*, *Aſiſa*, *Nod*, *Cad*, *Aboth*, *Purah*, *Bacbuc*, which ſome Authors take for certain Meaſures; but they rather ſeem to have been the names of Veſſels of no determinate bigneſs.

The Account of the Hebrew *Veſſels according to* Joſephus, *taken from Biſhop* Hooper.

" THE Quantity of the *Jewiſh* concave Meaſures, as it is de-" liver'd by the *Rabbins*, is uncertain. *Joſephus* the Hiſto-" rian of that Nation gives a plainer account of them; and very " conſiſtent with that he has made of the *Jewiſh* Weights; making " them alſo equal to the *Attick*. He manifeſtly ſpeaks the *Log* " equal to the *Attick Xeſtes*, when he expreſſes the quarter of a *Cab* " (in the ſecond Book of *Kings*, *Chap.* 6. *ver.* 25.) by it: And likewiſe " when he ſets a *Hin* of 12 *Logs*, at a par with an *Attick* double *Chous* " of 12 *Xeſtes*: and alſo a *Bath* the ſame Meaſure for liquids (as " appears from *Ezekiel* xlv. 11.) as an *Ephah* is for dry, and con-" ſequently of 72 *Logi*, or 72 ſuch *Xeſtes*; not to add that he " puts 10 of theſe *Ephahs* in a *Corus*, as equal to 10 *Medimni*: " thoſe teſtimonies of equality in theſe Meaſures, are ſufficient to " let us know, that the *Jewiſh* Veſſels of any certain number " of *Logs*, were equal to the *Attick* of the ſame number of *Xeſtæ*; " and that if there be an Expreſſion of one or two of them, that " ſeems to import a difference; it muſt either be wrong read, or " not right underſtood.

" An *Omer* or *Gomer*, for Example, which is declared to be the " tenth of an *Ephah* in *Exodus*, and by the name of a Tenth-deal, " or *Assaron*, in *Numbers*; and can be nothing else but the tenth of " 72 *Xestes*; or 7,2 *Xestes*; is yet under that very name expressed " in *Josephus*, as he is now read, by 7 not *Xestæ* but *Cotylæ*. And " this Difference must, in all probability, have risen by some error " of his Transcribers. *Epiphanius* giving an account of that *Assa-* " *ron*, makes it consist of 7 *Xestes* and a fifth, which is exactly " its due quantity; and leaves us to suspect, that in *Josephus*, *Xe-* " *stes* at least should be read in the place of *Cotyla*; and with or " without a fraction, as the Author may be supposed to have de- " signed Exactness, or been content with a near ordinary Approach: " *Ordinary*, I say, because tho' the fifth part of a *Xestes* being a " simple fraction, and Arithmetically regular; it is yet no proper " part of that Measure, nor can it be expressed by the lower Mea- " sures. But *Theodoret*, on the other side, seems in his Copy to " have read *Cotyla*, as it stands now in ours. And if we therefore " chuse to make no change, and take in the τρεῖς ἥμισυ κοτύλας " ἀττικὰς, which he cites as from *Josephus*; we may then conjecture, " that the τρεῖς now in *Theodoret*, was an abbreviated τέσσαρες in " in a better Copy; and that δέκα before τέσσαρας had been once " read, and by this reckoning we then have 14 *Cotylæ* and a half; " or 14,5; which exceed the due quantity, 7,2 *Xestæ* or 14,5 *Co-* " *tylæ* but by the tenth of a *Cotyla*.

" Such various conjectures there may be about the expression " of *Assaron* by *Josephus*; and yet no Doubt remain concerning his " Intention to express, in some manner, the same 7,2 *Logi*.

Of

Of the Measures of Capacity of the most noted Eastern *Nations.*

BEsides the Measures of the *Romans, Greeks* and *Jews* already mention'd, there are those of the *Persians, Ægyptians, Syrians,* and *Arabians,* which I shall give some account of, since they frequently occur in the ancient Authors, as well sacred as profane.

Of the Persian *Measures.*

[a] Αχάνη is a *Persian* Corn Measure, containing 45 *Attick Medimni.*

[b] Αρτάβη contain'd an *Attick Medimnus* and 3 *Chœnices.*

[c] Καπίθη was equal to 2 *Attick Chœnices.*

Of the Ægyptian *Measures.*

[d] Αρτάβη, among the *Ægyptians,* was equal to 3 ⅓ *Modii.*

[e] Ἀπόῤῥυμα, a Measure us'd only at *Thebes* in *Ægypt,* was equal to 11 ξέςης.

[f] Σαίτης was equal to 22 ξέςης.

[g] Οἴφιν was equal to 4 *Chœnices.*

[h] Ἰνίον an *Alexandrian* Measure contain'd 2 Pounds of Oyl.

[i] Τευβλίον was equal to the *Cotyla.*

[k] The *Ægyptian Modius* was equal to 8 *Chœnices.*

Of the Syrian *Measures.*

[l] Μετρητὴς was equal to 120 *Sextarii.*

[m] Κόλλαθον was equal to 25 *Xestæ.*

Σαβιθα

[a] Interp. Aristoph. in Acharnensibus. [b] Herodot. Suidas. [c] Xenoph. lib. 1. Anab. Cyri [d] Rhemnius Fannius. [e] Epiphan. [f] Idem. [g] Hesychius. [h] Epiphanius. [i] Cleopatra. [k] Galenus seu Græcus ignotus. [l] Cleopatra. [m] Epiphanius.

[n] Σάβιθα was equal to 22 *Xeſtæ*.

Χοῖνιξ a *Syrian* Meaſure mention'd by *Palladius*, the capacity not mention'd.

Of the Arabian *Meaſures*.

The knowledge of the *Arabian* Meaſures is neceſſary for thoſe who read the *Arabian* Phyſicians, ſuch as *Avicenna, Razes, Serapis, Meſue, Halyabbas*, &c.

[o] *Dorach* equal to the *Roman Amphora*.

[p] *Aldorach* equal to 2 *Xeſtæ*.

[q] *Johem* equal to the *Congius* of the *Romans*.

[r] *Kiſt* equal to the *Roman Sextarius*.

[s] *Korboni* equal to the *Hemina*.

[t] *Kiliathi* equal to one half of the *Cotyla*.

[u] *Keſluf* equal to the *Acetabulum*.

[x] *Cuathum* equal to the *Cyathus*.

[y] *Falgerin* equal to the *Cochleare parvum*.

Briala, a Meaſure of uncertain capacity, mention'd by *Avicenna*.

Muſtarum, the greater equal to ⅓ *Hemina*.

The Leſſer equal to ½ *Cyathus*. A corruption of the *Greek* μύςρων.

Some other Meaſures not common, which are found in particular Authors.

Ἄδδιξ and ἀδδιξις, equal to 4 *Chœnices*. *Ariſtophanes*. *Interpres Homeri*.

Αἶξ, the ſame with *Oxybaphum*. *Heſychius*.

Αλάβαςρον, equal to half the *Xeſtes*. *Epiphanius*

[n] Idem. [o] Serapio lib. 7. compendii. [p] Idem. [q] Avicenna in Breviario Vigilis. [r] Serapio. [s] Avicenna. [t] Idem. [u] Geor. Agricola ex Dioſcoride & Serapione. [x] Galen. lib. 8. de compoſ. Medic. & Serapio. lib. 5. [y] Geo. Agricola ex Dioſcoride & Serapione.

Ἄιλις, the same as *Oxybaphum.* *Hesychius.*
Ἀρυςὴς, equal to the *Cotyla.* *Hesychius.*
Ἀρυτὴς, suppos'd equal to the former. *Dioscorides.*
Ἀρύςιχος, equal to the *Cotyla.* *Eustathius.*
Ἀρύταινα, a brasen Vessel for holding Oyl. *Interpres Aristophanis.*
Βαίων, an *Alexandrian* Measure. *Hesychius.*
Βακάϊον, a Measure mention'd by *Hesychius.*
Βάφιον, a *Tarentine* Measure, equal to the *Acetabulum.* *Hesychius.*
Βάρβος, the same with *Mystrum* in *Hesychius.*
Βῖκος, a Wine Measure, the same with ςάμνος. *Hesychius.* *Athenæus.*
Γάβεον, equal to the *Tryblion.* *Hesychius.*
Γάβαθον, the same with the former. *Hesychius.*
Γάμβελον, the same also as *Tryblion.* *Hesychius.*
Γνώμων, the tenth of an *Artaba.* *Epiphanius.*
Δάδιξ, equal to six *Chœnices.* *Pollux lib.* 4.
Δεῖνος, equal to a *Metretes.* *Athenæus lib.* 11.
Διητία, half a *Medimnus.* *Hesychius.*
Δίπλυον, of uncertain capacity. *Hesychius.*
Δράξαι, a quarter of a *Xestes.* *Hesychius.*
Ελένιος, equal to the former. *Hesychius.*
Ἔλεφας, equal to three *Choes.* *Hesychius.* *Athenæus.*
Ἐκλαῖον, equal to ten *Cotylæ.* *Hesychius.*
Ἐκλαῖοι, *Hesychius.*
Εμβάφιον, equal to an *Oxybaphum.* *Hesychius.*
Επαμέτριον, a *Cnidian* Measure, *Hesychius.*
Ἡμίεκλον, equal to four *Chœnices.* *Hesychius.*
Ἡμιόγδοον, equal to two *Choes.* *Hesychius.*
Ἡμιδωδέκατον, equal to half a *Chous.* *Hesychius.*
Ἡμικόλλιον, a Wine Measure. *Hesychius.*
Ἡμικύπελον, half a *Medimnus.* *Hesychius.* *Epiphanius.*
Ἡμίτιον, equal to four *Choes.* *Hesychius.*

Ἰνίον, an *Ægyptian* Meaſure, equal to two *Cotylæ*. *Cleopatra*.

Κάμαρψις, a Corn Meaſure equal to half a *Medimnus*. *Heſychius*.

Καμάστης, an uncertain Meaſure. *Heſychius*.

Κάναστρον, mention'd by *Heſychius*.

Καπέτις χοῖνιξ, mention'd by the ſame.

Καμψάκης, a Meaſure or rather a Veſſel of uncertain bigneſs. *Epiphanius*.

Κόφινος, a Meaſure both of Liquids and Dry things. *Pollux*. *Heſychius*.

Κίκρος, mention'd by *Heſychius*.

Κύπρος, a Corn Meaſure, equal to half a *Medimnus*. *Heſychius*.

Κύπρειος μόδιος, a Meaſure of 22 *Sextarii* according to *Epiphanius*.

Κολία, ſuppos'd equal to a *Chœnix*. *Heſychius*.

Κοτύλη, an *Epheſian* Meaſure of uncertain bigneſs. *Galenus*.

Κόνδυ, an *Aſiatick* Meaſure equal to ten *Cotylæ*. *Athenæus*. *Heſychius*.

Κυαθὶς, a Veſſel equal to the *Cotyla*. *Athenæus*.

Λάγυνος, equal to 12 *Cotylæ*. *Athenæus*.

Λεκὸς, equal to a *Tryblium*. *Heſychius*.

Λύτρειον, a Meal Meaſure. *Heſychius*.

Λεύγη, a Milk Meaſure. *Heſychius*.

Μαθαλίδες, a ſort of Cup, ſuppos'd equal to a *Cyathus*. *Heſychius*.

Μάνης, an earthen Veſſel, holding 5 *Cotylæ*. *Athenæus*.

Μαρὶς, a Wine Meaſure. *Ariſtotle*. *Pollux*.

Μαριστὸν, equal to ſix *Cotylæ*. *Heſychius*.

Μνασίον, equal to two *Medimni*.

Μνάσις, a Corn Meaſure among the *Cyprians*, equal to 10 *Modii*. *Epiphanius*.

Ξέστης, that of *Alexandria* held two Pounds of Oyl. *Epiphanius*.

Ὀγδόα, equal to a *Semichœnix*. *Heſychius*.

Οἰνήρυσις, a ſmall Wine veſſel. *Heſychius*.

P 2 *Oluatium*

Olnatium, a kind of Meaſure, mention'd by *Feſtus Pompeius.*

Orca, a large Veſſel for holding new Wine. *M. Varro, lib.* 5. *cap.* 15.

Οὐδεϱία, equal to half the *Metretes. Heſychius.*

Παυλάνα, the ſame as *Tryblium. Heſychius.*

Πελάχνη, the ſame. *Heſychius.*

Πήϱα, a Corn Meaſure. *Heſychius.*

Ποτὴρ, a certain Meaſure. *Heſychius.*

Πϱόχοος, equal to a *Xeſtes. Heſychius.*

Ῥυτὸν, equal to three *Choes. Athenæus.*

Σμιρεὺς, a Meaſure for Wine: among the *Libyans. Heſychius.*

Τρυϐλίον, of different bigneſs. *Heſychius, Cleopatra, Athenæus.*

Τῶπιν, equal to 10 *Chœnices. Heſychius.*

Τϱιογδὸν, a *Tarentine* Meaſure. *Heſychius.*

Χυτϱίδιον, a Meaſure mention'd by *Heſychius.*

Beſides the Tables formerly printed, I have given decimal ones of the Meaſures of Length and Capacity, for conveniency in computation. But in the *Jewiſh* Meaſures I have not follow'd Dr. *Cumberland,* but choſe rather to deduce their Meaſures of Length from the Cubit drawn from the Pyramid, and to deliver their Meaſures of Capacity according to the account of them given by *Joſephus,* which I prefer to that of the *Rabbins.* I have alſo given a Table of the ancient *Arabian* Weights which were uſed by their Phyſicians, which is neceſſary for any that reads them with accuracy: and from their writings are taken the Authorities on which that Table is founded.

There is likewiſe a Table of the *French* Weights; and one of thoſe of *Cologn,* which are us'd through all *Germany* in weighing Gold and Silver.

I have alſo given Tables (tho' not at large) of the Weights of the moſt noted Cities and Countries of *Europe:* and Tables of their Meaſures of Length, all from the beſt hands: and I choſe rather to omit thoſe of Places of leſs note, than to give ſuch as I could

could not recommend for their accuracy. There needs no further explication, the title of the Tables themselves sufficiently shewing what they are.

The Tables of the modern Coins were communicated by Sir *Isaac Newton*, who has been always as industrious in promoting the publick good, as gloriously successful in the Discoveries of Nature. They were calculated by that accurate person from actual Essays made in the *Royal Mint*, about the beginning of this Century, when Guineas went at 21 *s.* 6 *d.* So that the Value of Gold Coins must be now diminished by one 43d part. In order to understand the Tables, the Reader must be inform'd, that one Pound Weight of *Sterling* Money contains 11 Ounces, 2 Pennyweight of fine Silver, and 18 Pennyweight of Alloy. The Gold Coin of *England* contains one 12th part of Alloy.

The first Column of the Table expresseth the Fineness of the essayed piece, the letter *B* signifying better, and *W* worse than the *English* Standard. The second Column contains the absolute Weight of the piece, the third Column the Standard Weight, or its Quantity of Standard Metal. The fourth Column expresseth its value in *English* Money. For example in the second article of Silver Coin, the *Sevil* piece of Eight, is 1 ½ Pennyweight in the Pound worse than the *English* Standard, weighs 14 Pennyweight, contains 13 Pennyweight 21 Grains and 15 Mites (of which there are 20 in the Grain) of *Sterling* Silver: and is in value 43 *English* Pence and 11 hundredths of a Penny.

A DISSERTATION
Of ROMAN *Money Affairs.*

ALTHO' Examples proper for the application of the Tables occur frequently in all ancient Authors, yet to comply with the custom of Publishers of Tables, and to show the use of them to those who are not daily perusing such Authors; it seemed necessary to add a Collection of Examples, which might accustom the Reader to such Computations. I then considered that by the classing and methodizing such passages, I might instruct the Reader in the Subject, as well as in the practice of the Numbers; which reflection was the occasion of the following Dissertation, if that be not too assuming a Title.

The Curious have thought the most minute affairs of *Rome* worth their notice; and surely the consideration of their wealth and expences is at least of as great importance as *Grammatical Criticisms, Rites, Ceremonies, Figures of Vases, Instruments, various Shapes of habits*, &c. upon which the Learned have perhaps taken too much pains, which might have been better bestowed upon the more manly enquiries into their Business, Arts, Professions, Oeconomical and Political Management.

For ought I know, the following way of considering the Affairs of *Rome*, may be new. For those who have wrote of their Luxury, have considered their Riches, Expences and Prices of Commodities only accidentally.

I

I do most sincerely and without any affectation acknowledge my own incapacity to produce any thing perfect on the Subject, for want of knowledge as well as leisure. I only beg those worthy persons who are better qualify'd for the undertaking by a sufficient stock both of Learning and Time, not to be angry with me for having pointed out a new Subject, in which they may signalize themselves.

The following Treatise is a Collection of some Articles, which may enable us to judge of the Wealth of *Rome* both private and publick, in regard to the quantity of current Species of Gold and Silver. In considering of which, these things naturally occur.

First, The small quantity of the Treasure of *Rome* in its Infancy.

Secondly, What proportion of Treasure *Rome* in its Grandeur contain'd, in respect of the richest trading Cities at this time in *Europe*, which one may call its absolute Riches.

Thirdly, What proportion their circulating Species bore to the price of commodities, or number of Inhabitants, which one may call the relative Riches of *Rome*. In which sense it has been doubted if *Rome* could properly be said to be richer than some trading Cities now in *Europe*. But I believe the Reader will judge that it had the advantage in both Senses.

Fourthly, There is still another Consideration: That as, I believe, there was in the time of the greatest splendour of the *Roman* Empire, a less quantity of Current Species in *Europe*, than there is now, since the Discovery of the *West-Indies*; *Rome* possessed a much greater proportion of the circulating Species of its time, than any *European* City ever did, and so may be said likewise to be Richer in that third Sense.

The Reader will observe in the following Examples, that the quantity of wealth was very different in *Rome* in different ages: to shew which, I have in some places mark'd the Chronology upon the Margin. He will likewise observe the same precise Sums in different Articles: for example, some great Estates equal to a Farthing,

Farthing, which proceeds from two Causes: First, The *Romans* reckoning as we do in round sums; such a one is worth a hundred or two hundred thousand Pounds: and secondly my being obliged to compute precisely according to the Tables.

I hope the Reader will not imagine that I vouch for the truth of every matter of fact. I only set them down as they are in the Authors, and compute the Sums as faithfully as I can. Calculation is the properest Method either to support Probability, or detect a Lye.

After all the care I have taken, it is possible there may be in such a multitude of passages, several misquoted, misinterpreted, and miscalculated, and a few I have taken from other Authors, who treated of the Subject. All I can say, the Reader will do himself a great deal of Service, and not in the least disoblige me, by setting any mistakes of this nature right.

I have in a few places, as the Subject gave me occasion, talked briefly of their Modes, Customs and Antiquities; about which I will likewise have no Dispute with the Learned, but submit most willingly to their Corrections.

I have been sparing in drawing Parallels or universal conclusions, my chief design being only to state matters of fact. Besides I think it more respectful to the Reader to leave him something to exercise his fancy and reflections upon, rather than pre-occupy his judgment. And indeed it is a subject in which, matters of fact being stated, a man of business who is used to Calculation, is a better Judge than the best Classical Scholar in the world without these qualifications. I am afraid that in avoiding prolixity I may have fallen into the contrary extreme; the whole almost runs on short, like Articles in an Account: whereas if the Subject were fully explained, each of them might take up half a page. But mentioning the sums without the Circumstances, was sufficient for my purpose.

The Collections I have made, and as I may say not only the Gleaning, but the plentiful Harvest that is left behind, will I hope

one

one day furnish some abler pen with Materials to treat the Subject in a more ample and accurate manner. I have done what the Extent of my Work, Health and Business would allow.

I was so tired out with *Roman* Affairs, that I could not go on so methodically with those of *Greece*; besides I doubt if there be so good Materials to work upon: so in these I have only collected a few detached Articles sufficient to exemplify the Tables.

I have produced likewise a few Examples out of the Scriptures, and any Reader who is curious may collect more. It is no Reflection on the Authority of the sacred Text that Errors in Numbers have crept into it.

CHAP. I.

Of ROMAN *Estates.*

THE vast difference between the Riches of *Roman* Citizens in the Infancy and in the Grandeur of *Rome*, will appear by comparing the first *Census* or valuation of Estates that was made in the reign of *Servius Tullius*, with the prodigious Estates that they afterwards possessed.

[a] At the first foundation of *Rome*, 2 *Jugera*, or 1 ¼ *English* Acres was an Estate. *Valerius Maximus* tells us that *Quinctius Cincinnatus* the *Dictator* (*A. U.* 292.) possessed 4 *Jugera*, 2 ½ Acres: and *Attilius Regulus* 7 *Jugera* or 4 ⅓ Acres (*A. U.* 498.)

Pliny (*lib.* 18. *c.* 3.) tells us that *Manius Curius* (*A. U.* 464.) said he took one to be a dangerous Citizen who was not contented with seven *Jugera*, which was the quantity of Land assigned the *Plebeians* after the Expulsion of the Kings.

Q And

a Plin. lib. 18. cap. 2. Bina tunc jugera populo Romano satis erant, nullique majorem modum attribuit.

And long afterwards *M. Scaurus* the firſt Senator had only ſix Slaves, and his Eſtate was reckon'd 35 *Millia nummum,* or 282 *l.* 11 *s.* 0½ *d.*

[b] At the firſt inſtitution of the *Cenſus,* the Valuation of Eſtates ſtood thus.

The 5th or loweſt Claſs reckon'd at *Æris Millia* XI, 35 *l.* 10 *s.* 5 *d.*

The fourth at XXV *Millia*; 80 *l.* 14 *s.* 7 *d.*

The third at L *Millia*; 161 *l.* 9 *s.* 2 *d.*

The ſecond at LXXV *Millia*; 242 *l.* 3 *s.* 9 *d.*

The Firſt at C *Millia*; 322 *l.* 18 *s.* 4 *d.*

[c] There was not a number amongſt the ancient *Romans* beyond a hundred thouſand. On the other hand, take but a view of the immenſe Eſtates of *Roman* Citizens in later times.

[d] *Apicius* was worth *millies Seſtertium*; 807291 *l.* 13 *s.* 4 *d.*

[e] *Criſpus* a Burgher of *Vercelles, bis millies,* 1.614583 *l.* 6 *s.* 8 *d.*

[f] *Craſſus* the ſame; 1.614583 *l.* 6 *s.* 8 *d.*

[g] *Demetrius,* a *Libertus* of *Pompey,* 4000 *Talents*; 775000 *l.*

[h] *Pallas,* a *Libertus* of *Claudius, ter millies*; 2.421875 *l.*

Seneca the Philoſopher in four Years made *ter millies*; 2.421875 *l.*

[k] *Lentulus* the *Augur* was worth *quater millies*; 3.229166 *l.* 13 *s.* 4 *d.*

[l] *Pliny* relates that a private man, *C. Cæcilius Iſidorus,* although he had loſt much in the Civil war, left by will, 4116 Slaves, 3600 yoke of Oxen, of other Cattle 257000, and in ready money HS. $\overline{DC}$. that is *ſexcenties Seſtertium*; 484375 *l.*

[m] The Riches even of Exiles grew ſo extravagant, that *Auguſtus* provided by a Law, that no Exile ſhould poſſeſs above 20 Slaves and *Liberti,* nor in money above 12½ *Myriads* of *Drachmæ*; 4036 *l.* 9 *s.* 2 *d.*

[n] In

[b] Livius lib. 1. [c] Pliny lib. 33. Non erat apud antiquos numerus ultra centum millia. [d] Seneca conſolat. ad Helvium. [e] Vetus Interpres Juvenalis. [f] Plin. lib. 33. cap. 10. [g] Plutarch. in Pompeio. [h] Tacitus lib. 12. [i] Ibidem. Quâ Sapientia, quibus Philoſophorum præceptis intra quadriennium regiæ amicitiæ termillies Seſtertium paraviſſet. [k] Seneca lib. 2. de Beneficiis.

[l] Plin. lib. 33. cap. 10. C. Cæcilius Claudius Iſidorus teſtamento ſuo edixit, quamvis multa civili bello perdidiſſet, tamen relinquere ſervorum quatuormillia centum ſedecim; juga boum tria millia ſexcenta, reliqui pecoris CC. quinquaginta ſeptem millia: in numerato HS. $\overline{DC}$. [m] Dion. lib. 56. μήτε δούλους ἢ καὶ ἀπελευθέρους, ὑπὲρ εἴκοσι χρῆσθαι, μήτ' οὐσίαν ὑπὲρ δώδεκα καὶ ἡμίσειαν μυριάδα ἔχειν.

[n] In the time of *C. Licinius* the Consul, *A. U.* 376. the limitation of Estates was 500 *jugera*, or 350 *English* Acres.

[o] And the old Law which allowed a man to possess no more in money than *Sexaginta Sestertia*, or 484 *l.* 7 *s.* 6 *d.* was changed by *Julius Cæsar*, who allowed the Sum to be 51 *Myriads* of *Drachms*, or 16468 *l.* 15 *s.*

The same gradual Encrease of Riches may be inferr'd from some accounts we have of Patrimonies and Women's Portions.

[p] The Patrimony of *Tacita*, reckon'd very great, was only X. M. *Æris*; 32 *l.* 5 *s.* 10 *d.*

And even in the time of the second *Carthaginian* War, the Portions of *Scipio*'s Daughters were paid in full by the Publick XI. *M. Æris*; 35 *l.* 10 *s.* 5 *d.*

Megullia was styled the *Fortune*, because she had C. M. *Æris*; 322 *l.* 18 *s.* 4 *d.*

[q] In later times a common Fortune for a Lady was *Decies Sestertium*; 8072 *l.* 18 *s.* 4 *d.*

[r] *Terentia*, *Cicero*'s wife, her Fortune was 12 *Myriads* of *Drachms*; 3875 *l.*

[s] And *Cicero*'s own Patrimony was 9 *Myriads* of *Drachms*; 2906 *l.* 5 *s.*

Pomponius Atticus got from his Father *vicies Sestertium*; 16145 *l.* 16 *s.* 8 *d.*

[t] *Cato Minor* his Patrimony was 100 *Talents*; 19375 *l.*

Servius in *Virgil*'s life saith he was worth *Centies H. S.* 80729 *l.* 3 *s.* 4 *d.*

Tully's Effects must have been very considerable, as will appear by some things that will be said afterwards: [u] he owns that he had in *Asia*, *bis & vicies*, 17762 *l.* 9 *s.* 4 *d.*

Q 2 Great

[n] Plutarch. in Camillo. [o] Dion. lib. 41. *ἀπηγόρευσε μηδένα πλέον πεντακισχιλίων, καὶ μυρίων δραχμῶν ἐν ἀργυρίῳ, ἢ καὶ χρυσίῳ κεκτῆσθαι.* [p] Val. Max. Tacita. Cæsonis filia, maximam dotem ad virum decem millia Æris attulisse visa est. [q] Juvenal Satyr 10. Mart. lib. 2. Epigr. 65. Tacit. Annal. 2. [r] Plutar. in Ciceron. [s] Cornelius Nepos. [t] Plutarch in Catone. [u] Ad H. S. bis & vicies Ego in Cistophoro in Asia habeo. Epist. ad Atticum lib. 11.

Great debts, as they are the effect of great credit, are an indication too of great riches, some instances of which are as follow.

[x] *Curio* is recorded for contracting a debt to the value of *Sexcenties Sestertium*; 484375 *l.*

[y] *Apicius* after having spent in his Kitchen *millies H. S.* 807291 *l.* 13 *s.* 4 *d.* and squander'd immense Grants and Pensions, being forced at last to look into his Accounts for the first time, found he had a small remain of *Centies H. S.* 80729 *l.* 3 *s.* 4 *d.* which thinking too little to afford the necessaries of life, he poisoned himself for fear of starving.

[z] *Tigellius* a Singer could spend in five days *Decies H. S.* 8072 *l.* 18 *s.* 4 *d.*

[a] One *Munna* is chastised by *Martial* for spending in less than a year *bis decies*; 16145 *l.* 16 *s.* 8 *d.*

[b] *Macrobius* speaks of a *Roman* Knight who could run in debt *bis decies*; 16145 *l.* 16 *s.* 8 *d.*

According to a *Latin* Translation of *Appian*, *Cæsar*'s debt before he had been in any Office abroad, was 2.018229 *l.* 3 *s.* 4 *d.*

[c] But according to a various Reading in a *Greek* Manuscript of the same Author, it was 2500 *Myriads*; 807291 *l.* 13 *s.* 4 *d.*

Cæsar himself owns, he wanted this Sum to be worth nothing; he had contracted this debt before he had any foreign Command.

Plutarch saith, that before he had been in any publick Office at home, he owed 1300 *Talents*; 251875 *l.*

[d] *Crassus* was his Surety for 830 *Talents*; 160812 *l.* 10 *s.*

[e] *Milo* contracted debts to the sum of *Septingenties H. S.* 565104 *l.* 3 *s.* 4 *d.*

[f] *Antony*

[x] Curio filius conflaverat Æris alieni Sestertium sexcenties. Val. Max. lib. 9. [y] Cum sestertium millies in Culinam congessisset, Principum ingens Capitolii vectigal singulis commessationibus hausisset, Ære alieno oppressus, rationes suas tunc primum coactus inspexit, superfuturum sibi sestertium centies computavit, & veluti in ultima fame victurus, si in sestertio centies vixisset, veneno vitam finivit

[z] decies centena dedisses
Huic parco paucis contento, quinque diebus
Nil erat in loculis. Horat.

[a] Bisque tuum decies non toto tabuit anno,
Dic mihi, non est hoc Munna perire cito.

[b] Macrobius lib. 2. Saturn. [c] Δισχιλίων κ̀ πεντακοσίων μυριάδων, subintelligitur δραχμῶν. [d] Plutarch in Cæsare.

[e] Milonem sestertium septingenties æris alieni debuisse, inter prodigia animi humani duco. Plin. 16. cap. 15.

[f] *Antony* at the *Ides* of *March* owed *Quadringenties H. S.* 322916 *l.* 13 *s.* 4 *d.* which he paid before the *Kalends* of *April.*

Plutarch tells us that *Otho* before he was Emperor, run in debt 5000 *Myriads*; 1.602083 *l.* 6 *s.* 8 *d.*

I shall beg leave to make a few observations upon the Estates of some persons celebrated by Authors for their Wealth.

Tho' there has been much talk of the Riches of *Crassus*, they were inferior to those of *Pallas* the *Libertus* of *Claudius*. *Crassus* had left him by his Father 300 *Talents*, or 58125 *l.* which [g] *Plutarch* saith he improv'd to 7100 *Talents*, or 1.375625 *l.* and this Sum he had before he led his Army against the *Parthians*. He was reckon'd a covetous fellow, because he had a singular faculty of turning War and publick Calamities to his own profit. And yet he gave to the people at once a *Tessera Annonaria trium mensium*, a victualling Ticket for three Months.

He kept a great *decorum* in matters of Religion, for he consecrated the tenth of his Estate to *Hercules*, I suppose as *Lewis* the XIth did the Seigniory of *Bologn* to the *Virgin Mary*, that no body might touch it. He was likewise a great Encourager of Trade and Manufacture; for he educated, maintained and let out men of all Arts and Professions. He did not employ all his money in Usury, but purchas'd a very considerable Land Estate, according to *Pliny*. *In agris bis millies possedit, Quiritum post Syllam ditissimus.*

So the valuation of his Land Estate by *Pliny* is 1.614583 *l.* 6 *s.* 8 *d.*

I think as the World goes he was a good sort of man enough.

To compare his Estate with that of *Pallas* the Freeman of *Claudius*. The Reader must be inform'd that [h] *Claudius* had two Freemen, *Pallas* and *Narcissus*. The first was *à Rationibus*, which I translate Privy-Purse: the second *ab Epistolis*, his private Secretary. Their Riches grew to a Proverb.

---- *Ego*

[f] Quadringenties H. S. quod Idibus Martiis Antonius debebat, ante Calendas Aprilis debere desiit. Cicer. Phil. 2da.

[g] Plutarch in Crasso.

[h] Sueton. in Claudio.

---------- Ego possideo plus
Pallante & Licinis -------- Juvenal.
Nec Cræsi fortuna unquam nec Persica Regna
Sufficient animo, nec divitiæ Narcissi
Indulsit Cæsar cui Claudius omnia. Idem.

Pallas's Estate, as the Reader may see before, amounted to 2.421875 *l.* And as a reward of his virtuous frugality, [i] he received by a *Senatus Consultum* mention'd by *Tacitus*, and *Pliny* the Orator, *Centies quinquagies H. S.* 121093 *l.* 15 *s.* which was razed out of the Records afterwards by *Justinian. sub Tit. de Senatus Consulto Claudiano.* That Sum must be added to the former mention'd. There was another pretence besides his frugality for that gift, for he inform'd the Senate of the Slaves that lay with their Women, I suppose Wives and Mistresses. There is mention'd a third, one *Calistus* a Freeman of the same Emperor, perhaps he had got a Million.

It is an obvious Remark, from the particulars above mention'd, that the private Estates of *Rome* grew with their Dominions. The parts of a great thing are great, and there are proportionably large Estates in a large Country.

There were some of very low Rank and Professions, who acquir'd great Estates. Coblers, Dyers and Shoemakers gave publick Shows to the People.

Sutor Cerdo dedit tibi, culta Bononia, munus,
Fullo dedit Mutinæ: nunc tibi caupo dabit. Mart. lib. 3. Ep. 59.

Vatinius a Shoemaker's Apprentice gave to *Nero* himself a famous Spectacle of *Gladiators* at *Beneventum*, of whom *Tacitus*, saith *Inter fœdissima aulæ ejus ostenta fuit, sutrinæ tabernæ alumnus, corpore detorto, facetiis scurrilibus, primo in contumelias assumptus, deinde optimi*

[i] Tacit. lib. 12. Fixum est Ære publico Senatus consultum, quo libertinus H. S. ter millies possessor, antiquæ parsimoniæ laudibus cumularetur.

timi cujusque criminatione eousque valuit, ut gratia, pecunia, nocendi etiam malis præemineret.

Crispinus was an *Ægyptian* Slave rais'd by *Domitian*, of whom *Juvenal* Satyr 1.

Cum pars Niliacæ plebis, cum verna Canopi
Crispinus, Tyrias humero revocante lacernas
Ventilet, æstivum digitis sudantibus aurum.

Cynamus a Barber acquir'd a greater Estate than any Nobleman in *Rome*, and was at last condemn'd only to *Equestrian Census*, and banish'd into *Sicily*.

Qui tonsor fueras tota notissimus Urbe,
Et posthac dominæ munere factus Eques, &c.
Non Rhetor, non Grammaticus, Ludive magister,
Nec Cynicus, non tu Stoicus esse potes:
Vendere nec vocem Siculis, plausumque Theatris,
Quod superest iterum, Cyname, tonsor eris. Mart.

Licinius mention'd likewise by the *Satyrist*, as the old *Scholiast* relates, was a young Slave, of so saving a Temper, that he let out the Offals of his meat to interest, and kept a Register of such Debtors in his Pocket-book; he was afterwards made a Collector in *Gaul*; where he acquir'd, as *Persius* expresses it, *Agros, quantum Milvi volant*, a Hawk's flight of Lands: for it should be read *Agros* instead of *Nummos*.

The riches and profusion of the Emperors are a Subject too large for the present Dissertation. *Claudius*, as *Eusebius* relates in his *Chronicle*, employ'd 30000 Men for 11 years to drain the *Fucin* lake. The Reader will meet with several instances of the prodigality of the *Roman* Princes in the sequel of this discourse. The effect of which profusion was a proportional rapacity. *Caligula* had both qualities in extream degrees; for, as *Suetonius* relates of him,

him, he us'd to walk and roll himſelf on heaps of Money, *nudis pedibus ſpatiatis, corpore volutatus.* *Nero* gave one ſhort inſtruction to his Tax-maſters, *Scis quid mihi opus eſt, hoc agamus ne quis quidquam habeat.* What he had occaſion for was, that no body ſhould have any thing left. The *Romans* had a great many pretty words to expreſs the pillaging of Provinces, *exſugere, corradere, deglubere, exoſſare,* which we have hardly *Engliſh* ſignificant enough to tranſlate. *Varro*'s Quibble I think was but an indifferent one. *Cum ſociis ita bellum geris, ut bella omnia domum auferas,* alluding to their diſtraining the furniture of houſes.

Thus in that great Empire Corruption begat Slavery, Slavery produc'd worthleſs and rapacious Favourites, thoſe begat Oppreſſion and Poverty; Poverty and Oppreſſion Depopulation, and want of Zeal and Affection in thoſe that remain'd, and from all theſe cauſes at laſt proceeded the final deſtruction of this mighty Empire. Corruption is a *Cancer* in the Body politick, ſcarcely admitting of any Cure, not even ſo much as Amputation.

CHAP. II.

Of the Prices of Bread-Corn.

THAT *Rome* in its Grandeur contained more Treaſure and Wealth of all kinds, Citizens of greater Riches and Expences than any *European* City ever did, perhaps will be readily granted; this, as I hinted before, may be called the abſolute wealth of *Rome.*

As to the relative wealth of *Rome,* that is the proportion of circulating *Species* to the number of Inhabitants, or the quantity of Commodities, it hath been doubted whether *Rome* in that Senſe were as rich as ſome trading Cities in *Europe* are at this time.

The middle or common prices of Commodities, which mankind have the ſame uſe for in all ages and times, ſeem to be the true Meaſure for aſcertaining the quantity of circulating money in any time or place, and there is no other ſo proper as Bread-corn. I ſhall therefore give the Reader a ſhort view of the price of Bread-corn as it was in *Rome* at ſeveral times.

Rome indeed by the care of the Magiſtrates was generally well provided with Corn, which was often given to the people for nothing, or at a very moderate price. [a] *Minutius Augurinus* the eleventh *Tribune* of the People, brought the price of Meal in three Markets, to an *As* for every *Roman Modius*, or 0 *d.* 3 $\frac{1}{10}$ *q.*

Which, conſidering the difference betwixt our Peck and their *Modius*, will make *per* Quarter 2 *s.* 0 *d.* 1 $\frac{4}{5}$ *q.*

[b] Corn was given to the people at the ſame price by *Manius Marcius*, *viz.* per Quarter, at 2 *s.* 0 *d.* 1 $\frac{4}{5}$ *q.*

But as I hinted before, this could not be reckoned a current price, becauſe (as the quotation mentions) it was in a manner beſtowed: beſides it was in early days, when money was ſcarce.

[c] *Clodius*, when *Tribune*, made a Law, that Corn ſhould be given to the people *gratis*, which was before, ſold the *Modius* for *Senis Æris ac trientibus*, at which rate the Quarter comes to 16 *s.* 3 *d.* 2 *q.*

[d] *Cicero* introduces *Verres* bragging that Wheat was at two *Seſtertii* the *Modius*, which makes the Quarter 10 *s.* 2 *d.* 1 $\frac{1}{15}$ *q.*

[e] He tells you, that there were two prices for the Corn bought up in *Sicily*, three *Seſterces* the *Modius* for the *Decumanum* or Tith-Corn, that is *per* Quarter 15 *s.* 3 *d.* 1 $\frac{3}{5}$ *q.*

And four *Seſterces* for the *frumentum Imperatum*, that is *per* Quarter 1 *l.* 0 *s.* 4 *d.* 2 $\frac{1}{5}$ *q.*

R The

[a] Minucius Augurinus, qui Sp. Melium coarguerat, farris pretium in tribus Nundinis ad aſſem redegit undecimus plebei Tribunus. Plin. lib. 18. cap. 3. [b] Plin. ibid. Manius Marcius Ædilis plebi primum frumentum populo in modios aſſibus donavit. [c] Plinius. [d] Cicero in frumentaria Verrina. [e] Cicero ibid. Ex Senatus conſulto & ex lege Terentia & Caſſia, Frumentum emundi duo genera fuerunt, unum certarum Decumarum, alterum quod præterea Civitatibus æqualiter eſſet diſtributum. Illius Decumani tantum quantum ex primis Decumis fuiſſet, hujus imperati Tritici Modii DCCC millia. Pretium autem conſtitutum Decumano in Modios ſingulos, H S. III; imperato H. S. IIII.

The Tith-Corn, I ſuppoſe, was conſtantly rais'd at a certain rate, and the *Imperatum* laid on by a certain diſtribution upon the ſeveral Cities, as occaſion required.

[f] *Verres* is accuſed for exacting *duodenos ſeſtertios in modios ſingulos*; this would bring the Peck to 1 *s.* 10 *d.* 3 $\frac{1}{15}$ *q.* and the Quarter to 3 *l.* 1 *s.* 1 *d.* 2 $\frac{2}{5}$ *q.*

[g] Afterwards the ſame Author expreſſeth the price of the Tith-Corn by the *Medimnus Georgicus* which contains ſix *Roman Modii*, which makes it *per* peck, 5 *d.* 2 $\frac{11}{15}$ *q.* and *per* Quarter, 15 *s.* 3 *d.* 1 $\frac{3}{5}$ *q.* the ſame as before.

[h] He is ſo particular as to tell the Sum which was remitted to *Verres* for the *Frumentum imperatum, viz. H. S. II. & tricies*, or 25833 *l.* 6 *s.* 8 *d.*

By the great acceſs of Riches and increaſe of money that happened afterwards, eſpecially in the reign of *Auguſtus*, the prices of Corn as well as every thing elſe were raiſed at *Rome*.

[i] *Tacitus* relates that after the burning of *Rome* by *Nero*, it was a great conſolation to the people to have the price of the corn reduced to 3 *nummi, viz.* the *Modius*, or *per Engliſh* Peck, 5 *d.* 2 $\frac{11}{15}$ *q.* This was the ancient price, and reckon'd very low at that time; for the prices of Flower and Bread mentioned by *Pliny* are much higher: [k] he tells us that the Bread made of a *Modius* of coarſe Flower coſt 40 *Aſſes*; of that which was entirely purged from the Bran, or very fine flower, 48 *Aſſes*; and what was made of the Flower of the *Siligo*, or the fineſt of all, was double of the firſt. If we proceed according to our *Engliſh* manner, it will make the Peck of the cheapeſt or houſhold Bread worth 2 *s.* 6 *d.* 2 $\frac{1}{4}$ *q.*

That of the Wheaten Bread worth 3 *s.* 0 *d.* 2 $\frac{3}{4}$ *q.*

And the fineſt 5 *s.* 1 *d.* 0 $\frac{1}{4}$ *q.*

Harduin explains the words in the ſame paſſage of *Pliny*, *Panis vero e modio Similaginis CXXII. e Floris modio CXVII.* of ſo many

[f] Cicero in Verrina frumentaria. [g] H S. XVIII. Frumentum Siculienſe ex lege æſtimatum eſt. Cicer. ibidem. [h] H S. II. & tricies Verri decretum in frumentum imperatum in annos ſingulos. Cicero ibid. [i] Pretiumque frumenti minutum uſque ad ternos nummos. Tacit. Annal. 15. [k] Pretium huic annonâ mediâ in modios farinæ, XL aſſes: ſimilagini caſtratæ octonis aſſibus amplius, ſiligini caſtratæ duplum. Plinius lib. 18. cap. 10.

many pound weight of Bread; but the paſſage muſt be either erroneous in the numbers or mean ſomething elſe, for in the paragraph before, *Pliny* ſpeaking of the weight of Bread that could be made of a *Modius* of *French* and *Italian* Flower, hath this Paſſage, *Siligineæ farinæ modius Gallicæ XXII. libras panis reddit, Italicæ duabus tribuſve amplius in artopticio pane.* Therefore CXXII pound of Bread of a *Modius* of Flower is an impoſſibility, the C is either redundant, and it ſhould be read XXII pound; or ſomething elſe than *Modius* muſt be underſtood.

The *Engliſh* Bakers make of a Peck of our Flower 18 pound of Bread at moſt. The weight of the Peck loaf by the Lord *Mayor*'s order is 17 *lb.* 6 *oz.* 1 *dr.* *Averdupois*; ſuppoſing eighteen pound *Averdupois* made of our Peck, according to the *Roman* Meaſure and Weight, it will make of the *Roman Modius*, about 24 *Roman* Pounds, which agrees with *Pliny*'s account.

The Aſſize of Wheaten Bread in *London* is pretty near as 3 to 5, that is, when Wheat is 15 pence the Peck, the Peck loaf is ſold for 25 pence. The price of the middle ſort of Bread, which anſwers to our wheaten, according to *Pliny*, is 3 *s.* 0 *d.* 2 $\frac{1}{2}$ *q.* which, reckon'd according to the forementioned proportion, will make Wheat *per* Quarter at 3 *l.* 3 *s.* 6 *d.* as the common or middle price.

The great difference of the ſeveral prices of their Bread, much exceeding the difference of the prices of ours, proceeded from their great delicacy in Bread, and perhaps ſomething in their manner of baking. *Pliny* reckons four ſorts of Bread, the *Oſtrearii*, or Loaves baked with Oyſters; *Artolagani*, which anſwered to our Cakes; *Speuſtici*, à σπεύδω, from their quick way of preparing; and *Artopticii* ſuch as were baked in Ovens, called ſo from the furnace in which they were baked.

The paſſage above mentioned is to be underſtood of this laſt Bread.

By the laſt prices of Bread, it ſeems that about the time when *Pliny* wrote, Corn was conſiderably dearer in *Rome* than commonly at *London*; and it is evident that the prices of commodities were

low in early Times, and rose gradually in *Rome* by the encrease of Money, as they have done in *France*, *England*, and other Countries of *Europe*.

CHAP. III.

Of the Price of Wine.

WINE seems to have been always cheap at *Rome*. There is in *Pliny* a remarkable passage concerning the price of Wine; he saith [1] in the Consulate of *Opimius*, *A. U.* 633, there being an excellent Vintage, Wine was laid in according to the rate of that time at 100 *Nummi* the *Amphora*, (which containing seven Gallons, and one Pint; 10,66 solid Inches) or, 16 *s.* 1 $\frac{3}{4}$ *d.* this will make it *per English* Hogshead, 7 *l.* 1 *s.* 10 *d.* which is a higher price than some that are mention'd in other Authors. *Pliny* proceeds, and reckons when this Wine was drank 160 Years afterwards, by reason of the interest of money which was 6 *per Cent.* it came to two *Nummi* the *Cyathus*, or 3 *d.* 3 $\frac{1}{2}$ *q.*

This passage is not only curious on the account of the price of Wine, but it is an instance of the *Roman* manner of computing interest at that time, which was neither simple nor compound interest reckon'd at every term of payment, but of a lower Rate; for after 101 Months they added six *per Cent.* to the Principal, besides the simple interest that was due upon the Sum, which they called *Anatocismus*; so it is named by *Cicero*. To examine whether *Pliny* reckoned right: in 160 Years there are

1920

1 Opimio Consule, cum C. Gracchus Tribunus plebem seditionibus agitans interemptus: ea cæli temperies fulsit, quam cocturam vocant, solis opere, natali Urbis 633. Durantque adhuc vina ducentis fere annis, jam in speciem redacta mellis asperi. etenim hæc natura vinis in vetustate est; nec potari per se queunt, si non pervincat aqua, usque in amaritudinem carie indomita. Sed cæteris vinis commendandis minimâ aliquâ mixturâ medicamenta sunt: quod, ut ejus temporis æstimatione in singulas Amphoras centeni nummi statuantur, ex his tamen, usura multiplicata semissibus, quæ civilis ac modica est, in Caii Cæsaris Germanici filii principatu. anno 160. Singulas uncias binis (ita Budæus legit) constitisse, nobili exemplo docuimus.

1920 Months, which if you divide by 101, it gives 19 *Anatocismi*, which makes the Sum due by the *Anatocismi* 114: 100 *Nummi* principal and intereſt at 6 *per Cent.* after 160 years, make 1060, to which if you add 114, it makes 1174. There are 576 *Cyathi* in an *Amphora*, which at 2 *Nummi* the *Cyathus*, make 1152 *Nummi*, which wants only 22 *Nummi* of the Sum. And if you reckon that 6 *per Cent.* to bear Intereſt 18 times, it will add 17 *Nummi* to the Sum, which make it only 5 *Nummi* ſhort of *Pliny*'s account.

This would make the *Engliſh* quart of the *vinum opimianum* amount to 13 *s.* But this proceeded from an accidental reaſon of the intereſt of the money firſt laid out.

The prices of Wines at the vineyard were much lower than that of the *Opimium*, [m] for *Columella* ſaith, that the very worſt ſort of Vineyards would produce *per Jugerum*, a *Culeus* of Wine; that is, about $\frac{5}{7}$ of an *Engliſh* Acre produced 143 Gallons and 3 Pints; which was ſold for 300 *Nummi*, that is 2 *l.* 8 *s.* 5 $\frac{1}{4}$ *d.* at this rate the Hogſhead comes to 1 *l.* 0 *s.* 11 *d.*

But it muſt be conſidered that this is at the Vineyard, the worſt Ground and the worſt Wine. It will be fair to reckon double that price for the common Wine, or about 8 *l.* *per* Ton.

[n] *Cicero* ſtates the Cuſtom exacted for Wine at *Toulouſe*, 4 *Nummi* the *Amphora*, which *per* Hogſhead comes to be 1 *l.* 2 *s.* 8 $\frac{1}{4}$ *d.*

There are very low prices mentioned by Authors, as that by [o] *Martial*, making it *per* Gallon about 2 *d.* and Corn a Peck at 3 $\frac{1}{2}$ *d.*

But thoſe are mentioned as extravagantly cheap, and poetically.

There are likewiſe recorded times of prodigious plenty, which cannot be drawn into any Rule, as that ſpecify'd by [p] *Pliny*, when 12 Pounds of Oyl was ſold for an *As*; and likewiſe at the Triumph of *Metellus*, when near an *Engliſh* Gallon of Wine, 30 *Roman* Pounds *A. U.* 600.

[m] Quippe ut deterrimi generis ſunt vineæ, tamen ſi cultæ ſint, ſingulos utique culeos vini ſingula eorum jugera peræquabant. utque trecentis nummis Quadragenæ urnæ veneunt (quod minimum pretium eſt annonæ) conſument tamen ſeptem Culei ſeſtertium duo millia & centum nummos. Columel. lib. 3.

[n] Quaterni Denarii in ſingulas Amphoras portorii nomine exacti Toloſſæ. Cic. pro M. Fonteio.

[o] Amphora vigeſſis Modius datur Ære quaterno. Mart.

[p] Plin. lib. 15. cap. 3.

Pounds of dryed Figs, ten pound of Oyl, 12 Pounds of Flesh, and a Peck of Meal, were sold each at an *As*, or 3 $\frac{1}{10}$ *q.*

[q] *Anno Urbis* 675, *Greek* and *Aminium* Wines were forbid to be sold for 8 *Asses* the *Quadrantal*, or *Amphora*, that is for less than one penny the Gallon; but this was for a particular reason.

CHAP. IV.

Of the Price of Cattle.

I Can discover very little of the price of Cattle amongst the ancient *Romans*. [a] In early times the price of a good Calf, was 25 *Asses*, 1 *s.* 7 $\frac{3}{8}$ *d.*

[a] The price of a Sheep, a *Denarius*, or 7 $\frac{3}{4}$ *d.*

[a] The price of an Ox ten times as much, that is 6 *s.* 5 $\frac{1}{2}$ *d.*

But these prices must have been afterwards very much increased, for *Varro* speaking of the price of a Peacock, saith † that it was above the price of a Sheep, which at least is an argument that a Sheep was not much short of the price of a Peacock, and this was 50 *Denarii*, or 1 *l.* 12 *s.* 3 $\frac{1}{2}$ *d.*

The *Roman* Fines or Penalties exacted by Law had still a Relation to those original prices of Cattle, and were very gentle at first, and continued still to be so from the nature of their Government. Their effects at first consisted chiefly in Cattle, publick plunder retained the name of *Peculatus*.

The lowest fine of all was a Sheep, or 7 $\frac{3}{4}$ *d.*

[b] The Fine for a private injury, a Calf, or 1 *s.* 7 $\frac{3}{8}$ *d.*

[c] The

[q] P. Licinius Crassus & Julius Cæsar Censores A. U. DCLXXV. edixerunt ne quis vinum Græcum, Aminiumque, octonis Æris singula Quadrantalia venderet. Plin. lib. 14. c. 14.

[a] Epicharmus apud Pollucem, Festus Pompeius.

† Eosque cum creverunt (pullos nempe pavonum) quinquagenis denariis vendit, ita ut nulla ovis hunc assequatur fructum.

[b] Asses viginti quinque pœnæ sunt, si quis alteri injuriam facit. Gell. lib. 26. cap. 1.

[c] The rate of the highest Fine was 30 Oxen, and two Sheep, or 3020 *Asses*, that is 9*l.* 15*s.* 0½*d.* from which *Gellius* observes, that Oxen were more numerous than Sheep, and I am told it is so at this time in *Italy*.

[d] The Regard had to that rate of fining, was consider'd even in the time of *Justinian*; for the Judges under Proconsular Authority were forbid to fine above a *Quadrans* of a pound of Gold, which according to the value at that time was 9*l.* 15*s.* 0½*d.*

Those who had Proconsular authority, could fine *auri semissem*, or double the former Sum. It was allowed to the *Præfectus Prætorii* to fine as far as 50 pounds of Gold, not so much with regard to the Dignity of his office as the Atrocity of the fact.

[e] *Gellius* tells us, there was an exception from the usual gentle rate of fining in the case of a Lady, who for the incivility of her Speech was fined *XXV. M. Æris X millia* 80*l.* 14*s.* 7*d.*

[f] *Sestertiorum X millia* was likewise the Fine for laying one's Tail in the Fountain of an Aqueduct, making 80*l.* 14*s.* 7*d.*

[g] Cities were fined pretty high, *Rhodes* by *Brutus* was fined 500 *Talents*, 96875*l.*

I have been induced by the price of Cattle to say so much of the rates of Fines, from this small relation it had to the subject of Cattle.

To return to the price of Cattle: As to horses, *Livy* [h] tells us that there were 10000 *Asses* given out of the publick money to the *Equites* to buy horses, and that the Widows were oblig'd to contribute towards their keeping the Sum of 2000 *Asses* yearly.

If, as it is commonly supposed, there were two horses, the price of them was 32*l.* 5*s.* 10*d.* or, *per* Horse, 16*l.* 2*s.* 11*d.*

And

[c] Gellius, lib. 11. Noctium Atticarum.) [d] Lege ultima de modo mulctarum in Codice Justiniano. [e] Gell. lib. 9. De Appii Cæci filia. Ob hæc mulieris verba tam improba ac tam incivilia, Ædiles Plebei multam dixerunt ei Æris gravis XXV millia. Id factum bello Punico primo. [f] Sestertiorum dena millia multa esto, si quis aquam Aquæductus dolo malo oletaret, ubi publice salit. [g] Plut. in Bruto. [h] Ad equos emendos dena millia Æris ex publico data; & quibus equos alerent, viduæ attributæ, quæ bina millia Æris in annos singulos penderent. Livius lib. 1.

And their feeding came yearly to *6 l. 9 s. 2 d.* which is *per* Horſe, *3 l. 4 s. 7 d.*

Theſe ſeem to be pretty high rates for that time, tho' much inferior to the prices of horſes afterwards. [i] *Gellius* mentions one ſold for 100 *Seſtertia, 807 l. 5 s. 10 d.*

[k] The price of *Bucephalus* was 13 *Talents, 2518 l. 15 s.*

[l] *Pliny* relates from *Varro,* that a Jack-Aſs for a Stallion was bought for *3229 l. 3 s. 4 d.* [m] And that in *Celtiberia,* a Province of *Spain,* a She-Aſs has brought Colts to the value of *3229 l. 3 s. 4 d.*

[n] *Varro's* price indeed is much inferior to that of *Pliny,* he ſpeaks of an Aſs ſold in his own time at *Rome,* for *60000 H. S. 484 l. 7 s. 6 d.*

By the above-cited paſſage of *Varro,* it appears that the price of a Sheep was ſomewhat under that of a Peacock, *viz. 1 l. 12 s. 3½ d.* Suppoſe we fix it at 25 Shillings a Sheep, or 25 Pound the Score; according to the fore-mention'd proportion of a Bullock being ten times as dear as a Sheep, the price of one will be *12 l. 10 s.* and that of a Calf will come out *3 l. 2 s. 6 d.* ſince it was *1 s. 7½ d.* when the price of a Sheep was 7¾ pence, or as 5 to 2. This will make the price of Butcher's meat in *Varro's* time not much different from what it is in *London.*

[i] Gell. lib. 3. cap. 9. [k] Gellius lib. 5. cap. 2. [l] Plin. lib. 8. cap. 43. Aſinum CCCC.M nummum emptum, Quinto Axio Senatori, auctor eſt M. Varro, haud ſcio an omnium pretio animalium victo. [m] Plin. ibid. [n] Varro lib. 2. cap. 1. Tertia pars eſt, quo ſint feminio quærendum. Hoc nomine enim Aſini Arcadici in Græcia nobilitati, in Italia Reatini, uſque eo, ut meâ memoriâ aſinus venierit ſeſtertiis millibus LX.

CHAP.

CHAP. V.

Of the Roman *Expences in Eating.*

WE have been able, as appears by the former Chapter, to discover somewhat, at least by inference, of the common prices of Butcher's meat; and as to Fowl and Fish, Authors take little notice of the common prices, but only mention those that are extravagant.

[a] I find that *Turdi*, fat Birds, which we commonly translate Thrushes (but of which there are several sorts) were sold a-piece at 3 *Denarii* 1 *s.* 11 ¼ *d.* they were in great reputation, and used in Feasts. FOWL.

[b] Peacocks were sold dear, the price of one was 50 *Denarii*, 1 *l.* 12 *s.* 3 ½ *d.*

[b] A flock of a hundred was sold at a much dearer Rate, for *XL M. H.S.* or 322 *l.* 18 *s.* 4 *d.*

[b] One of their Eggs was worth 5 *Denarii*, 3 *s.* 2 ¾ *d.*

[b] *M. Aufidius Lurco* used to make every year of his Peacocks 60000 *HS.* or, 484 *l.* 7 *s.* 6 *d.*

[a] *Varro* saith he has known 5000 *Turdi* come from one Farm in a Year, which according to the forementioned price are worth 484 *l.* 7 *s.* 6 *d.*

[c] Commonly fine Doves were sold the pair at the same price with Peacocks, *viz.* 200 *Nummi*, or 1 *l.* 12 *s.* 3 ½ *d.*

Others of a finer kind were much dearer. *Varro* relates that *Axius* refused to give a pair of his under 400 *Denarii*, 12 *l.* 18 *s.* 4 *d.*

S When

[a] Atque in hac villa qui est ornithon, ex eo uno quinquemillia scio venisse turdorum denariis ternis, ut sexaginta millia ea pars reddiderit eo anno villæ. Varro lib. 3. cap. 2. [b] Idem lib. 3. cap. 6. [c] Paria singula vulgo veneunt ducenis nummis, nec non eximia singulis millibus nummum, quas nuper cum Mercator tanti emere vellet a L. Axio Equite Romano, minoris quadringentis denariis daturum negavit. Varro lib. 3. cap. 7.

When the Merchant who was buying them, offered 1000 *Nummi*, 8 *l.* 1 *s.* 5 ½ *d.* But those were valu'd so highly for Pleasure, rather than the Table.

[d] *Augustus Cæsar* bought the Crow that saluted him as he was returning from *Actium*, a pennyworth at 20000 *Nummi*, 161 *l.* 9 *s.* 8 *d.*

[e] A white Nightingale was bought at 6 *Sestertia*, 48 *l.* 8 *s.* 9 *d.* for a present to *Agrippina*, *Claudius*'s Wife.

[f] Goose Down was sold *per* Pound for 5 *Denarii*, 3 *s.* 6 ½ *d.*

FISH. The *Romans* were more extravagant in the prices of their Fish, than of Fowl. [g] *Juvenal* tells you of a *Mullus* (which is supposed to be what the *French* and we call *Surmoullet*) bought for 6000 *Nummi*, 48 *l.* 8 *s.* 9 *d.*

[h] According to *Macrobius* there was paid for another 7000 *Nummi*, 56 *l.* 10 *s.* 1 ½ *d.*

[i] For a third, according to *Pliny*, 8000 *Nummi*, 64 *l.* 11 *s.* 8 *d.* which he reckons the more wonderful, the *Mullus* being a Fish that seldom exceeded two pound weight. These are not to be reckon'd common prices; but as they were the effects of great Extravagance and Luxury, they were indications of great riches, at least among the people of high rank.

Fishes at *Rome*, like Toasts, were sometimes in vogue, then wore out by length of time, and succeeded by others. [k] Thus the *Acipenser* or Sturgeon was dethroned by the *Scarus*, and the *Asellus* or Whiting by the *Muræna*. However the *Acipenser* had still some Honour paid him, having the Hautboys marching up before him, and being carried by people with Coronets on

[d] Sueton. in Augusto. [e] Scio sestertiis sex, candidam [Lusciniam] alioquin, quod est prope inusitatum, venisse, quæ Agrippinæ Claudii Principis conjugi dono daretur. Plin. lib. 10. cap. 29. [f] Plin. lib. 10. cap. 22.

[g] ---- Mullum sex millibus emptum. Juv. Sat. 4.

[h] Macrob. lib. 3. cap. 16. septem millibus.

[i] Plin lib. 8. cap. 17. octo millibus nummum Asinius Celer, hoc (Mullo) pisce prodigus, Caio Principe unum mercatus est; quod ideo mirum videri debet, quod hic Piscis raro admodum binas libras ponderis exsuperat. [k] Plin. lib. 9. Sect 37. Apud antiquos piscium nobilissimus habitus acipenser. Sect. 38. Postea præcipuam auctoritatem fuisse Lupo & Asello. Sect. 39. Nunc Scaro datur principatus, qui solus piscium dicitur ruminare; proxima est his mensa generis mustelarum ex reliqua nobilitate & gratia, maxima est & copia Mullis sicut magnitudo modica.

on their Heads to the Table. (*Ut Acipenſerem inferrent Coronati cum cantu Tibiæ*) Notwithſtanding the great reputation of the *Scarus*, the *Mullus* kept his ground among the polite. [l]*Varro* owns that you might ſooner get the beſt Team of Horſes out of *Hortenſius*'s Stables, than a bearded Mullet out of his Ponds.

[m]The *Tripatanum*, which we ſhall tranſlate Triplet, was the chief eating according to *Feneſtella*, which conſiſted of the Lamprey, the *Lupus Marinus* (not our Pike as we imagine) and the *Myxo* another fiſh, which hath no *Engliſh* Name. Theſe were ſerv'd up together in one machine with three Bottoms. Much may be ſaid in honour of the *Muræna*, or Lamprey.

[n]*C. Hirrius*, the moſt famous *Roman* for Fiſh-ponds, thought his Lampreys ineſtimable; he would not ſell, but lent ſix thouſand of them for *Cæſar*'s Triumphal Supper.

[o]*Lucius Craſſus*, a Man of Cenſorial Dignity, went into Mourning for a deceaſed Lamprey; [p]and *Vedius Pollio* a *Roman* Knight, a great Friend of *Auguſtus*, fed his Lampreys with his condemned Slaves, and yet he was celebrated for a good-natur'd man.

Our Age is as yet unacquainted with the niceneſs of [q] the Ancients in weighing their Fiſhes at Table, and beholding them expire. [r]The death of a *Mullus* with the variety and change of Colours in its laſt moments, was reckon'd one of the moſt entertaining Spectacles in the world.

[s]It is ſome honour to our Nation that the *Sandwich* Oyſters were famous (*Rutupino de fundo*) but I cannot diſcover what they were a Barrel.

S 2 'The

[l] Varro lib. 3. cap. 17. Celerius voluntate Hortenſii ex equili educeres Rhedarias ut tibi haberes mulas, quam e piſcinis barbatum mullum. [m] Plin. lib. 35. Tripatanum, inquit Feneſtella, appellabatur ſumma cœnarum lautitia, una erat Murænarum, altera Luporum, tertia Myxonis piſcis. [n] Plin. lib. 9. cap. 55. C. Hirrius ante alios, qui cœnis triumphalibus Cæſaris Dictatoris, ſex millia numero Murænarum mutuo appendit. Nam permutare quidem pretio noluit. [o] Quod Lucius Craſſus vir Cenſorius Murænam in piſcina domus ſuæ mortuam atratus luxerit. [p] Plin. lib. 9. cap. 23. Vedius Pollio Eques Rom. ex amicis D. Auguſti, vivariis earum (murænarum) immergens damnata mancipia, non tanquam ad hoc feris terrarum non ſufficientibus, ſed quia in alio genere totum pariter hominem diſtrahi, ſpectari non poterat. [q] Ammian. lib. 28. [r] Plin. lib. 9. cap. 17. Mullum expirantem verſicolori & numeroſâ quadam varietate ſpectari, proceres gulæ narrant, rubentium, Squamarum multiplici mutatione palleſcentem utique ſi vitro ſpectetur incluſus. [s] Plin. lib. 32. cap. 6. Item Juvenalis

- - - - - - Circæis nata forent an
Lucrinum ad ſaxum Rutupinoque edita fundo
Oſtrea - - - - - -

[t] The *Romans* were in as great favour with their Fishes, as their Fishes were with them: no body could say they were deaf, for they would come when they were called.

[u] A Lady bestowed Earings upon a favourite Lamprey.

After what I have said of the great value the *Romans* put upon Fishes, it will not appear incredible that [x] *C. Hirrius* should sell his Fish-ponds for *Quadragies H S.* 32291 *l.* 13 *s.* 4 *d.*

[y] And that *Lucullus*'s fish, after his death, should be sold for the same, *viz.* 32291 *l.* 13 *s.* 4 *d.*

[a] It will not be impertinent to the present subject to make honourable mention of *Fulvius Hirpinus,* who was the first that made a Nursery for Snails, and fed them so well (*farre & sapâ*) with bran and boil'd wine, that the capacity of the Shells of some of them amounted to 80 *Quadrantes,* or 20 *Sextarii,* that is about 10 Quarts.

[b] As to the price of fruit, we know that peaches were sold first for a *Denarius* $7\frac{3}{4}$*d.* And they rose afterwards to 30 *Nummi,* or 4 *s.* 10 *d.*

[c] Cherries were brought out of *Pontus* by *Lucullus A. U.* 680, and were brought into *Britain* 120 years afterwards, which makes it *Anno Dom.* 55. But I cannot find what they were a hundred.

Large *Asparagus* was sometimes sold a-piece for 6 *d.* which will make them amount to 2 *l.* 10 *s.* *per* hundred.

[d] But the *Ravenna Asparagus* was as large as our *Battersea Asparagus,* weighing four ounces a-piece.

The forementioned particulars will dispose the Reader to believe that the *Romans* were as extravagant in their eating in the last Days

[t] Plin. lib. 10. Mart. lib. 6. Ep. 30.
[u] Antonia Drusi, muraenae quam diligebat, inaures addidit. Plin. lib. 9. cap. 55.
[x] Hujus villam intra quam modicum quadragies piscinae venierunt. Plin. lib. 9. cap. 55.
[y] Quadragies HS. piscinae a defuncto illo veniere pisces. Plin. lib 9. cap. 54.
[a] Cochlearum vivaria instituit Fulvius Hirpinus. (& paulo post) Quin & saginam earum commentus est, sapa & farre, aliis generibus. ut cochleae quoque altiles ganeam implerent: cujus artis gloria in eam magnitudinem perducta sit, ut octoginta quadrantes caperent singularum calices. Plin. lib. 9. cap. 56.
[b] Primo denariis singula venundata, pretiumque jam singulis triceni nummi fuere. Plin. lib. 15. cap. 12.
[c] Cerasi ante victoriam Mithridaticam L. Luculli non fuere in Italia. Ad Urbis annum DCLXXX. is primum vexit e Ponto: annisque CXX trans Oceanum in Britanniam usque pervenere. Plin. lib. 15. cap. 25.
[d] Plin. lib. 9. cap. 4.

Days of their Commonwealth, as they were frugal in the beginning of it. [e] For in early times they were allowed only to lay out on festival days 30 *Asses*, 1 *s.* 11 ¼ *d.* on eating; They were allowed to lay out on a Supper no more than 100 *Asses*, or 6 *s.* 5 ¾ *d.* (besides the product of the ground, that is, Bread, Drink, Roots and Legumes,) whence they were called *Centenariæ Cœnæ.* And *Lucilius* the Poet from his manner of living was named *Centussis.* [f] *Cato* the elder never spent more than his Allowance of 30 *Asses* on a meal. But they arrived by degrees to an incredible extravagance. [g] *Heliogabalus* laid out on a Supper *tricies H. S.* 24218 *l.* 15 *s.*

[h] *Caligula* spent on a Supper *Centies H. S.* 80729 *l.* 3 *s.* 4 *d.*

[i] *Vitellius* in eating and drinking, within the Year, spent 22500 *Myriads* of *Drachms*, 7.265625 *l.*

[k] *Tacitus* saith, that he spent the same Sum in a few Months, *viz.* 7.265625 *l.*

[l] *Lucullus*'s establishment for his Suppers in the *Apollo*, was 50000 *Drachms*, 1614 *l.* 11 *s.* 8 *d.*

[m] *Claudius Æsopus* the Tragedian had one dish that cost him 600 *Sestertia*, 4843 *l.* 10 *s.* In which, to enhance the price of it, he had put singing Birds.

[n] The young Captain, his Son, treated his Guests with costly Pearls, a Pearl for ev'ry Guest made into Pearl Cordial.

It may seem somewhat difficult to make out the Bills of fare for some of the forementioned Suppers, especially those of *Vitellius*. I question not but an expert Clerk of a Kitchen can do it from the following hints.

[o] First, his Imperial Majesty eat four times a-day; no Supper, Breakfast or Collation under 400000 *Nummi*, or 3229 *l.* 3 *s.* 4 *d.* and

[e] Macrob. lib. 3. cap. 17. Asses triginta duntaxat edundi causâ cuique sumere licebat, ex lege Licinii. [f] Plutarch. in Catone majore. [g] Lampridius corrupte tribus millibus H. S. pro tricies H. S. [h] Seneca de consolatione. [i] Dio in Vitellio. [k] Lib. 17. Novies Millies H. S. Vitellius Cæsar paucis mensibus invertisse creditur. [l] Plutarch. in Lucullo. [m] Plin. lib. 10. cap. 60. Maxime tamen insignis est in hac memoria Clodii Æsopi Tragici Histrionis patina sexcentis sestertiis taxata. [n] Iterum lib. 35. cap. 12. Cum unam patinam Æsopi Tragœdiarum histrionis in natura avium diceremus sexcentis sestertiis stetisse, non dubito indignatos legentes. [o] Sueton. in Vitellio cap. 13. Trifariam semper, interdum quadrifariam dispertiebat in jentacula & prandia & cœnas, commessationesque: facile omnibus sufficiens, vomitandi consuetudine. Indicebat autem aliud alii eadem die: nec cuiquam minus singuli apparatus quadringenis millibus nummum constiterunt.

and by way of preparation for the next meal he took gentle Emeticks between them.

[p] His Brother once gave him a pretty costly Supper, in which there were two thousand of the choicest fishes, seven thousand of the choicest Birds; one dish for its amplitude and capacity was called *Minerva*'s Buckler, which consisted chiefly of the livers of *Scari*, the brains of Pheasants and Peacocks, the tongues of Phenicopters, and Lamprey's Bellies brought from the most distant Coasts in *Triremes*. Now the Reader must understand that the *Scarus* was first in repute amongst fishes, and generally cost the value of a Principality. Next to that was the *Mustella*, and after that the *Mullus*, which cost sometimes about 64 Pounds.

The *Roman* recumbent or (more properly) accumbent posture in eating was introduc'd after the first *Punick* War: and no doubt occasion'd by their eating immediately after Bathing. The Tables were low amongst the better sort, made of *Citron* or some precious wood, with three Ivory Feet, cut in the Figure of a Lion's or Leopard's Paw. About the Table there were three Beds at most: after the time of *Vespasian*, there were often but two; from whence they were called *Biclinia*; and the Table was in the figure of a Semicircle, from which it was called *Sigma*; the Space before was open for the Waiters. In both sorts of Tables, the Beds were cover'd with magnificent Quilts, amongst the richer sort. After bathing they put on their *Vestes Cœnatoriæ*, Garments that were made to eat in. It is plain that this manner of eating was not only inconvenient, but impossible for a great number of Guests at the same Table; and yet there were twelve at a famous Supper of *Augustus*, mention'd by *Suetonius*, from thence called δωδεκάθεος. So that the common opinion is not true, *viz.* that *L. Verus* was the first who made a feast for 12 persons. In the description of the *Pontifical*

[p] Sueton. in Vitellio, cap. 13. Famosissima super cæteras fuit cœna ei data adventicia a fratre: in qua duo millia lectissimorum piscium, septem avium apposita traduntur. Hanc quoque exsuperavit ipse, dedicatione patinæ, ob immensam magnitudinem Clypeum Minervæ, *ἀιγίδα πολιάχυ* dictitabat. In hac Scarorum jecinora, phasianorum & pavonum cerebella, linguas Phœnicopterum, murænarum lactes a Carpathio usque fretoque Hispaniæ per navarchos ac triremes petitarum commiscuit.

tifical Supper mention'd by *Macrobius*, there were 10 at two Tables; the Guests lay on their left Side, leaning on their elbow, with their Heads supported by Pillows. When there were more than one on the same Bed, they did not lye as we on our Beds, but so as the Feet of the first person reached to the Back of the second, and so on. The most honourable place was the uppermost, or head of the bed, except when there were three persons on one, and then the most honourable place was the middle. It was thought indecent at first for women to eat with men after this manner, but it was easy to imagine that time must either abolish the custom, or conquer their modesty. In nuptial and other solemn feasts, where the Guests were numerous, there were several *Triclinia* in the same Room, and yet they could not entertain conveniently so many as dine often in our great Halls. Therefore their way of eating must have been, generally speaking, more private than ours, and on that account less expensive. And the reflection of *Varro* in *A. Gellius*, that the number of Guests should begin at that of the Graces, and end with that of the Muses, from 3 to 9, was not only true, but agreeable to the Characters and Manners of the People. As for their Napkins, *Heliogabalus* had those of Cloth of Gold, and *Galienus* too, as *Trebellius* relates: but they were most commonly of Linnen, some of soft Wool; as *Trimalcion's*, *qui non linteis tergebatur, sed palliis ex mollissima lana factis.* In some Banquets the Guests brought their own Napkins.

There is a description of the magnificent and expensive manner of eating of the ancient *Romans*, *Greeks* and *Barbarians*, in *Philo Judæus, de vita contemplativa.* It is too long to insert here, but some of the particulars which he mentions are, Beds adorn'd with Ivory, Tortoise-shell, Pearls and precious stones; Matresses of Purple interwoven with Gold, adorn'd with Foliages and Flowers; vast Side-boards of drinking Cups, and Vases of the richest workmanship: being serv'd with handsome young Boys, painted, curled, and finely dress'd: seven changes of Tables, and some-

times more, served up with the greatest delicacies, that Earth, Sea or Air could afford. It was the custom then to change the Tables with the Courses or Services.

They liv'd upon the same sorts of Flesh and Fish as we do, only they had no Turkeys. We have mentioned some of the Fishes that were in greatest request, as the *Sturgeon, Scari, Lamprey, Lupus Marinus,* &c. *Athenæus lib.* 1. *cap.* 4. acquaints us, that *Sicilian Lamprey Eels,* πλωταὶ, that is floating, (perhaps in opposition to muddy,) the Belly of *Tunny* Fish taken at *Pachynum,* Kids from the Island of *Melos, Mulets* from *Symetum,* Shell-fish of *Pelorus, Herrings* of *Lipara, Radishes* of *Mantinea, Turnips* of *Thebes, Beets* from *Ascra,* were in greatest esteem. They had a great variety of Cakes, as *Placenta, Laganum, Libum, Scriblita, Sphærita, Crastianum, Situtum, Crustulum.* Each of which may make a very good Subject of a Dissertation for an Antiquary; as also whether they had Pyes. One may judge of the art of their Cooks from this, that they could make artificial Birds and Fishes, in Default of the real ones, and which exceeded them in the exquisiteness of the Taste. *Nicomedes* King of *Bithynia,* longing for Herrings, was supplied with fresh ones by his Cook, tho' at a great distance from the Sea. *Trimalchus*'s Cook could make out of Hog's Flesh all sorts of Fishes and Birds. They were much addicted to boiling and roasting with Puddings in the Belly. *Athenæus* speaks of a Cook that could dress a whole Hog in that manner. I refer the Readers to the Writers on this Subject, for accounts of their Pickles and Sawces. They made a very savoury one of the Intrails of the Beasts which they dress'd.

Their Tables seem to have been more delicate than abundant. There is a Bill of Fare, and the Company recorded, in *Macrobius lib.* 2. *cap.* 9. who took it out of the Records of the High-Priest *Metellus.* It was the Inauguration Supper of *Lentulus,* when he was made *Flamen Martialis,* Priest of *Mars.* The Guests were all sacred persons, Priests and Vestals. There were ten Men in two *Triclinia, viz. Lentulus* himself, *Q. Catulus, M. Æmilius Lepidus, D. Silanus,*

D. Silanus, C. Cæsar Rex sacrorum, P. Scævola Sextus, Q. Cornelius, P. Volumnius, P. Albinovanus, and *L. Julius Cæsar* the *Augur.* In the third *Triclinium* were *Popilia, Perpennia, Licinia, Aruntia,* Vestals; and *Publicia Flaminica* his Wife, and *Sempronia* his Mother-in-law.

The Bill of Fare follows, at the Inauguration Supper of *Lentulus.*

Ante Cœnam.	*Before Supper, or the first Course.*
Echini,	Shell-fish, prickly like a Hedgehog.
Ostreæ crudæ, quantum velint,	Raw Oysters, as many as they pleas'd.
Peloridæ,	Cockles, so call'd from *Pelorus* in *Sicily.*
Sphondyli,	The grisly parts of Oysters,
Turdi,	Thrushes,
Asparagi,	Asparagus,
Subtus Gallinam altilem.	Under a cramm'd Fowl.
Patina Ostrearum,	A plate of Oysters.
Pelorides,	Cockles.
Balani nigri, *Balani albi,*	Another Shell-fish, shap'd like an Acorn.
Iterum Sphondyli,	The grisly part of Oysters a 2d time.
Glycomaridæ,	The largest kind of Cockles.
Utricæ Ficedulæ,	Beccaficos.
Lumbi Capragines, Aprugni,	Chines of a Goat and Boar.
Altilia ex farina involuta,	Fat Birds in paste.
Ficedulæ,	Beccaficos.
Murices, & Purpuræ.	Two sorts of Shell-fish, of which the purple Dye was made.

In Cœna.	*At Supper.*
Sumina,	Dugs of a Hog.
Sinciput Aprugnum,	Boar's Cheek.

T *Patina*

Patina piscium,	A Dish of Fish.
Patina Suminis,	A Dish of Sow Dugs.
Anates,	Ducks,
Querquedulæ clixæ,	Boiled fat Birds.
Lepores,	Hares,
Altilia Assa,	Cramm'd Birds roasted.
Amylum,	A Pudding.
Panes Picentes,	A sort of Cakes.

In answer to some who have doubted whether it were possible for *Vitellius* to spend 7.265625 *l.* in eating and drinking within the Year: I will suppose his Establishment to stand thus,

	l.	*s.*	*d.*
For the ordinary of his Table, four meals a-day, at the rate of 3229 *l.* 3 *s.* 4 *d. per* Meal in a Year; ---------	4.714583	6	8
For the Extraordinaries of *Pallas*'s Buckler	765625	0	0
For his other Tables and Contingencies	1.785416	13	4
Sum Total	7.265625	0	0

With very good Clerks of the Green-Cloth this Sum might have serv'd a Year, but with bad Management, it's no wonder it was spent much sooner.

As I intend to deal candidly with my Readers, I would not willingly lead them into any mistake about a matter of such consequence as *Æsop*'s Dish above-mention'd, neither would I incur the Displeasure of learned men, who in their Discourses about this *Patina* have fallen into indecencies, which nothing but the Dignity of the Subject could excuse. *Gronovius* has corrected *Pliny* three times, and *Tertullian* once in this matter, with a great deal of Judgment. *Hotoman* has taken *Budæus* to task, and *Gronovius* refutes them both. Manuscripts have been oppos'd to Manuscripts. As for my part, I invoke the aid of all great Criticks to assist me, before I give my Judgment

Judgment in so important a matter. The passages which commemorate this famous *Patina*, as they are commonly read, are First, *Plin. lib.* 10. *cap.* 51. *Maxime tamen insignis est in hac memoria*, Claudii Æsopi *Patina sexcentis sestertiis taxata, in qua posuit aves Cantu aliquo aut humano sermone vocales, Nummis sex singulas coemptas. Plin. lib.* 35. *cap.* 12. *Nam nos, cum unam Æsopi Tragœdiarum Histrionis, in natura avium diceremus, sestertiis C. stetisse, non dubito indignatos legentes. At Hercules Vitellius in principatu suo C. C. sestertiis condidit patinam, cui faciendæ fornix in campis exædificata erat, quoniam eo pervenit Luxuria ut etiam fictilia pluris constant quam Murbina. Tertullian. de Pallio cap.* 5. *Gulam quâ Asinius Celer unius Mulli obsonium sex sestertiis detulit, qua Æsopus Histrio ex Avibus ejusdem pretiositatis ut canoris & loquacibus, quibusque Centum millium patinam confiscavit.* In order to set right, what has so unhappily divided the critical World hitherto, I hope the Learned will give their opinions upon the following points.

What they think of *Budæus*'s Reading of *Millibus sex singulas* for *Nummis sex*: consequently whether this *Patina* was *Centenaria*, of 100 Birds; or else, that each Critick will send in his number of Birds?

Whether the Value of the Dish it self is only exprest, which the learned *Hotomanus* hath contended for with great warmth?

Or whether the Dish and the Birds are valued?

And what they think of *Salmasius*'s Opinion, which he has defended strenuously, and fallen foul of *Budæus*? *viz.*

That *Pliny* affirms three things, that *Æsop*'s dish was earthen Ware, that it cost 100 *Sestertia*, and that it is the workmanship that is valued, and not the Birds, which perhaps were not worth a Shilling a-piece. I cannot come into this rash Judgment, founded only on the comparison of *Æsop*'s Dish with that of *Vitellius*, where undoubtedly the workmanship is meant.

Tertullian has certainly confounded the whole very much; and the words *ejusdem pretiositatis* may refer either to the preceding example of *Asinius Celer*, or the Birds; as if he had Birds of equal

price with singing Birds. Another question ariseth, whether common Manuscripts are wrong in reading *Ex* instead of *Sex*: from all which strong Arguments, *Gronovius* has taken it upon his Salvation that there were no more than six singing Birds, each worth *Centum millia*, or a hundred thousand, and consequently the whole Dish must be worth six hundred thousand, or 4843 *l.* 15 *s.*

But I own the matter appears still so intricate to me, that I must beg the Opinion of the Learned upon it.

CHAP. VI.

Of the Prices of Cloaths.

AS to the Prices of Cloaths, we may infer that amongst those of great quality they were high, from the following matters of fact.

[a] A *Roman* Pound of *Padua* Wooll has been sold for 100 *Nummi*, 16 *s.* 1 ¾ *d.* at this rate the *English* pound *Troy* comes to 17 *s.* 8 ¼ *d.* but this is an extraordinary price, and for the very finest Wool, as the *Padua* Wool is yet reckoned.

[b] *Bassus* is reproached by *Martial* for buying upper Garments for 10000 *Nummi*, 80 *l.* 14 *s.* 7 *d.* whereas [c] *Cato* the Elder never wore a Suit above 100 *Drachms*, 3 *l.* 4 *s.* 7 *d.*

The Purple was very dear; [d] there were two sorts of Fishes whereof it was made, the *Pelagii*, (which were those that were caught in the deep) and the *Buccini*. The *Pelagium per* Pound was worth 50 *Nummi*, 8 *s.* 10 ½ *d.*

And

[a] Plin. lib. 9. cap. 47. Centenos nummos libra Lanæ albæ circumpadanæ ad hoc ævi non excessit. [b] Mart. lib. 8. Epigr. 10. Emit lacernas millibus decem Bassus. [c] Plutarch. in Catone majore. [d] Plin. lib. 9. cap. 40. Non tamen usque Pelagii libras quinquagenos nummos excedere, & Buccini centenos, sciant qui illa mercantur immenso.

And the *Buccinum* double that, *viz.* 17*s.* 8 ½*d.* *Harduin* reads a hundred Pounds at that price.

But whatever the price of the Fish was, the Cloth was very dear. [e] The Violet Purple was *per* Pound of dy'd Wool or Cloth 3 *l.* 10*s.* 11 *d.*

[e] The *Tyrian* double Dye *per* Pound could scarce be bought for 35 *l.* 9*s.* 1 ½*d.*

[f] *Pliny* tells us that to dye 50 pounds of Wool, was required 200 pounds of *Buccinum,* and 110 pounds of *Pelagium.* According to this proportion, and the prices of *Buccinum* and *Pelagium* above-mentioned, the Dying of one *English* Pound of Wool, would cost 4 *l.* 10*s.* 5 *d.*

[g] There was an *Indian* Purple at 7*s.* 1 $\frac{1}{10}$. *per* Pound as appears by *Pliny,* who likewise mentions several other sorts of cheap Dyes.

[h] There is one piece of extravagance mention'd by the same Author, which was their dying the Wool upon the Sheep's back.

It appears by a Tax of *Cato*'s, that the Ladies began pretty early to be extravagant: it was provided by that Law, that Women's wearing Cloaths, Ornament and Sedan, exceeding 121 *l.* 1 *s.* 10 ½*d.* in value, should pay 1 ½ *per Cent.* or 30 Shillings in the hundred pound value. If this Law had continued in force in the time of [i] *Lollia Paulina,* she must have paid for her Jewels only 4843 *l.* 15 *s.* for when dressed out, she wore about the value of 322916 *l.* 13 *s.* 4 *d.*

Lampridius saith that *Heliogabalus* was the first man who wore a Garment entirely of Silk. *Seneca* [k] speaking of the silken Cloaths, owns they were used by the Ladies, and it seems they were thin like Gauz, for he complains that they discovered too much. [l] The Men were forbid to use silk Cloaths, by an Order of *Tiberius.* And even purple Cloaths were forbid by *Julius Cæsar,*

[e] Plin. lib. 9. cap. 39. Nepos Cornelius, qui divi Augusti principatu obiit, me inquit juvene, violacea purpura vigebat, cujus libra denariis centum venibat: nec multo post rubra Tarentina. Huic successit diabapha Tyria, quæ in libras denariis mille emi non poterat.

[f] Plin. lib. 9. cap. 38. Summa medicaminum in L libras vellerum, Buccini ducentæ, Pelagii CX.

[g] Pretium Indico X. X in libras Plin. lib. 35. cap. 6.

[h] Plin. lib 8. cap. 48. vidimus jam & viventium vellera, purpura, cocco, conchylio, sesquipedalibus libris infecta.

[i] Plin. lib. 9. cap 15.

[k] Seneca de Beneficiis lib. 7. cap. 9.

[l] Dio lib. 57.

ſar, [m] except to perſons of certain ranks and ages, and on certain days.

[n] It ſeems they were extravagant in their *Triclinaria,* which one may tranſlate Quilts or Carpets. *Capito* was reproached by *Metellus,* that he had paid for *Babylonian Triclinaria* 6458 *l.* 6 *s.* 8 *d.* This is nothing to the price paid by *Nero* mentioned afterwards, *viz.* 32291 *l.* 13 *s.* 4 *d.* Ladies would pay for one piece of Linnen 8072 *l.* 18 *s.* 4 *d.*

Their Extravagance in Cloaths appears from one particular, that they changed them often in their Banquets, and Baths.

In ſtating the balance of Expences between the ancient *Roman,* and our Dreſſes, the particulars muſt be conſider'd: firſt Linnen was not us'd among the *Romans,* at leaſt by men, till about the time of *Alexander Severus,* of whom *Lampridius,* who wrote his Life, obſerves that he wore Linnen. *Varro lib.* 1. takes notice that after the *Romans* began to wear two *Tunicks* or Coats, they introduc'd the words *Subucula* and *Induſium.* It is certain that *Auguſtus* wore a woollen Shirt. *Suet. in Aug. cap.* 82. *Hieme quaternis cum pingui Toga, Tunicis & Subuculæ thorace laneo & fœminalibus & tibialibus muniebatur.* *Plin. lib.* 19. *cap.* 1. relates it from *Varro* as a particular piece of Luxury of the family of the *Serrani,* that the Ladies wore Linnen: ſo that in this Article the Balance of Expences is on our ſide. The *Tunicks* of the *Romans,* which properly anſwer to our Waſtcoats, were ſimple, without Ornaments, and with very ſhort Sleeves. Thoſe who ſerved at Table wore them larger plaited, and tied with a girdle. Next to the *Tunick* they wore the *Chlamys* or *Paludamentum,* which was a ſort of a ſhort Cloak tied with a Buckle commonly to the right Shoulder: this was a garment of People of Quality, and commonly wore by the Emperors. The *Pallium* was a Garment ſomewhat like that of the Eccleſiaſticks in Popiſh Countries, but ſhorter. There were a great many ſorts of them. The *Palliolum* was ſomewhat like our Riding-Hoods, and ſerv'd both for a *Tunick* and Cloak. The *Phelone* or

[m] Sueton. in Cæſare. cap. 43. [n] Plin. lib. 8. cap. 48.

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Penula did not differ much from the *Chlamys*, except in the Stuff it was made of. The *Toga* was a Robe of Quality, not allowed to the ordinary people: it came, as *Tertullian* (*de pallio*) observes, from the *Pelasgi* to the *Lydians*, and from the *Lydians* to the *Romans*. The Antiquaries being but indifferent Taylors, they wrangle prodigiously about the cutting out the *Toga*: I am of opinion a Mantua-maker could decide those Disputes better than the most learned of them. I mention those Habits, in order to observe, that because of the simplicity of the Shape, want of Ornaments, Buttons, Loops, Gold and Silver Lace, they must have been cheaper than ours, both as to the price of Materials and Taylor's Bills, and because loose Garments are likewise more lasting. One of the most valuable Trimmings of their Cloaths was a long Stripe sow'd upon the Garment, call'd *latus Clavus*. A *latus Clavus* of Gold was an extraordinary thing; for *Vopiscus* in *Bonaso*, quotes a Letter of the Emperor *Aurelian*, which mentions amongst the Presents sent to *Bonasus* by the Emperor, *Tunicam auro clavatam subsericam*. *Horace de Art. Poet.*

> *Purpureus late qui splendeat unus & alter*
> *Adsuitur pannus*,

The *Trabea* or *Vestis trabeata*, seems to have differ'd from some of the former in Shape as well as in the condition of the Stuff: according to it's appellation, in all probability it was only a striped Garment. The *Lacerna* came from being a military Habit to be a common Dress, especially in the Country: it had a Hood which could be separated or join'd to it, as occasion requir'd. The common People us'd this of a dark Colour, and the Nobles of Purple. The *Birrhus quasi* πυῤῥος, was a *Lacerna* of a Flame Colour. The *Gausape* was a Habit rough and hairy on one side; and the *Amphimalla* was rough on both sides. The simplicity of their Ornaments appears from the Habits of the young Nobility, for the *Prætexta* which was given to young Noblemen at the Age of sixteen, had

had only a purple border about it. It would ſeem that they did not make uſe of Handkerchiefs, but of the *Lacinia* or border of the Garment to wipe their face: for *Plautus* ſaith

At tu ædipol, ſume Laciniam & abſterge
Sudorem tibi.

All theſe Garments were for the moſt part made of Wool at firſt. Silken Garments did not come in till late, and the uſe of them in Men was often reſtrained by Laws. *Vopiſcus* tells us that the Emperor *Aurelian* denied his Wife a Silk Gown, and thought the demand very extravagant. And here I muſt advertiſe the Reader that tho' I have all along tranſlated *Serica* Silken, it may not be the proper ſignification of that word: for good Criticks diſtinguiſh the *Veſtis Bombicina* from *Serica*. And they are ſo diſtinguiſh'd by *Ulpian lib.* 23. *ff. de Auro Arg. Leg. Veſtis an veſtimenta legentur nihil refert, veſtimentorum ſunt omnia linea, laneaque, vel Serica vel Bombicina.* The *Bombicina* were thoſe which are made of the Silk-worm: and *Serica* perhaps made of a vegetable Production like Cotton. *Ammianus Marcellinus lib.* 23. *cap.* 11. *Cœli apud Seres jucunda temperies, ſalubriſque, Aeris facies munda, leniumque ventorum commodiſſimus flatus, & abunde ſilvæ ſublucidæ, a quibus Arborum fœtus aquarum aſperginibus crebris, velut quædam vellera molientes, ex lanugine & liquore mixtam ſubtilitatem tenerrimam pectunt. Virgilius lib.* 1. *Georg.*

Vellera quæ foliis depectunt tenuia Seres.

There are multitudes of other paſſages to the ſame purpoſe.

Men now-a-days are vaſtly more expenſive in the Ornaments of the head, for the *Roman* Men went commonly bare-headed, except when the hot, cold or wet weather forced them to cover it with their Gown. In the Country they uſed ſometimes a Hood. The *Pileus*, which we tranſlate *Bonnet*, was ſomewhat like a Night-cap:

cap: it was the ſymbol of Liberty, and therefore given to Slaves at their Manumiſſion. *Suetonius* tells us, that after the death of *Nero*, the people came all out with *Pilei* or Bonnets. There were other ſimple coverings for the Head, ſuch as the *Tutulus*, *Apex* and *Galerus*: this laſt was made of the Skins of ſacrificed Beaſts. But all thoſe Dreſſes for the Head were much cheaper than our Perriwigs and lac'd Hats. The *Petaſus* was a ſort of a travelling Cap: one may ſee the figure of it in the Statues of *Mercury* with wings added to it, *Alexander* the great wore it, as *Athenæus* tells us.

As to Women's Dreſſes, I think the balance may be thus ſtated between the *Roman* and the *Engliſh* Ladies. *Plautus in Epidic. Act.* 2. has made a comical Liſt of a *Roman* Lady's Wardrobe, which is impoſſible to tranſlate into any modern Language: but one could make an Inventory twice as long for an *Engliſh* or *French* Woman. The *Roman* and *Grecian* Women at firſt wore *Togæ*, afterwards *Tunicks*: the Stuff was moſt commonly Wool, of ſo thin a Texture, for Summer Dreſſes, that *Lucian* ſays, you could ſee their Bodies through them. *Tarentum* was as famous for that ſort of Manufacture, as now our *Norwich* is. The outward Garment of Women was the *Palla* or *Amiculum*, which ſometimes covered the Head like a Veil: it was much the ſame with the *Peplus*. The *Crocata* was perhaps an outward Garment, ſo called from the Saffron Colour. The *Penula* mention'd before was us'd by Women as well as Men; it was forbid to Women, except in the Country, by *Alexander Severus*; perhaps for being too convenient for intriguing. In all theſe particulars, whether we conſider the variety of Garments, price of the Stuffs or Ornaments, our Ladies ſeem to be more expenſive. I doubt the *Roman* Ladies were not ſo coſtly as ours in Head-dreſſes, although there be an infinite variety in ancient Buſts and Statues. *Fauſtina* the wife of *M. Aurelius* appears on Medals in three or four different Head-dreſſes: for they were as changeable in their Faſhions as we are. They us'd falſe Hair, or Perriwigs: ſuch was the *Caliendrum* mention'd by *Horace*.

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The *Fibula*, of which there are prodigious varieties still remaining, being a lasting thing, made of some Metal, even Gold ones, (which were allowed to Soldiers by *Aurelian*, as *Fl. Vopiscus* informs us) must have been much less expensive than new Buttons and Loops to every Suit.

I have chosen to mention the most common Dresses, and the Stuffs they were made of. As for the *Vestes Byssinæ*, which we are told some Ladies wore, they must have been of such an extravagant price, that there is no Stuff in our age comes up to it. The Scruple of *Byssinum*, according to *Pliny* (*lib.* 19. *cap.* 1.) cost four *Denarii*, or 2 *s.* 7 *d.* which makes the Pound *Averdupois* worth 49 *l.* 12 *s.* consequently a Garment of twenty Pound Weight would cost 992 Pounds the Materials only, besides the Manufacture.

Both Men and Women wore Bracelets, Ear-rings and Pendants of Gold, and precious Stones. There are some found at this day of Amber, and Glass. They were very expensive in this Article, therefore *Habinnus* in *Trimalcion*'s Feast saith, if he had a Daughter, he would cut off her Ears. *Pliny lib.* 12. speaking of Pearls and Emeralds, saith, for their sakes, *Excogitata sunt aurium vulnera*, Wounds of the Ears were invented. *Seneca de vita Beata, cap.* 17. *Ut mulier locupletis domus censum Auribus gereret. Idem de beneficiis. Non satis est mulieribus insania, nisi bina ac terna patrimonia Auribus pependissent.* By which passages, we find that Ladies, as well then as now, wore great Estates in their Ears. Both Men and Women wore *Torques*, Chains or Necklaces of Silver and Gold set with precious Stones. The Ancients seem to have been more expensive in Shoes and Stockings than we. There are about a dozen of names for the several sorts of *Calcei*, or the Coverings of the Feet and Ancles. The two extremities of the durableness of the Materials of Shoes, seem to have been in those of the Disciples of *Pythagoras*, made of the Barks of Trees; as *Philostratus* (*in vita Apollonii*) informs us: and those of *Empedocles*, made of Brass. *Strabo lib.* 6. *Philetus Cous* was such a slender Fellow, that he was forc'd

forc'd to wear Leaden Shoes, for fear the Wind should blow him down: but *Varro*, who relates this Story from *Ælian*, asks a puzling question, If he was so weak, how he could walk with such heavy Shoes. There were two sorts of Shoes among the Ancients, such as cover'd the whole Feet, *viz.* the *Mulleus*, *Pero* and *Phæcasium*; and those that left the upper part of the Foot bare, and were tied about with Thongs, *viz.* the *Caliga*, *Solea*, *Crepida*, *Braxea* and *Sandalium*. The *Mullei*, (from whence perhaps the *French* word *Mules*) were at first allowed only to the *Ædiles*, they were made of Leather dress'd with *Allum* of a yellow Saffron Colour, and by them worn only on high Days. It is not quite certain when the *Roman* Senators began to wear Shoes, only we are sure Shoes were wore in the time of *C. Marius*, and *Julius Cæsar*, who was blam'd for wearing high-heel'd yellow Shoes as being descended from the *Alban* Kings, as *Dion* tells us. Tho' *Suetonius* saith, it was only to increase his Stature. Afterwards the *Romans* grew extremely expensive and foppish in this Article: So that the Emperor *Aurelian* forbid Men that variety of Colours on their Shoes, allowing it still to Women. But the great Expence consisted in Pearls and precious Stones with which they adorn'd their Shoes. The use of those was likewise restrain'd to certain qualities by the Emperor *Heliogabalus*. The common country People wore *Perones*, Shoes of undressed Leather. The *Phæcasium* was a white Shoe, used by Priests in sacrificing. *Appian. Alexand.* The *Caliga* was a military Shoe with a very thick Sole, tied above the instep with leather Thongs. The military Shoes of the Emperors and Tribunes were called *Campagus*. The Women wore *Soleæ* or *Crepidæ*, which left a great part of the upper part of the Foot bare. It appears from a passage of *Cicero de Inventione*, that wooden Shoes were given to Criminals to hinder them from making their Escape. As for what they call the *Soccus*, the dress of comical Actors, it was something between a Shoe and a Stocking. The *Cothurnus* was used in Tragedy: it had a high Sole, and so gave a greater Stature to the Stage Heroes. There was another sort of Orna-

ment wore by the young Nobility called *Bullæ*; they were round, or of the figure of a Heart, hung about their Necks like Diamond Crosses. Those *Bullæ* came afterwards to be hung to the *Diplomas* of the Emperors and Popes, from whence they had the name of Bulls.

The Men as well as the Women, in the later Ages of *Rome*, us'd Paint and Perfumes, and curled their Hair with great nicety. The Philosophers, Satyrists and Historians of those times are full of Reflections upon those effeminate customs.

It appears from some passages of ancient Authors, (*Ammianus Marcellinus lib.* 28. *Seneca de Tranquillitate cap.* 1.) that they kept their Cloaths, when they were not worn, constantly in a Press, to give them a Lustre.

Sic tua suppositis perlucent prœla Lacernis. Martial.

They had great variety and changes of Garments. *Plutarch* relates a Story of *Lucullus*, that a *Prætor* coming to borrow of him some Dresses for his *Chorus* in a publick Spectacle which he intended to exhibit, *Lucullus* answer'd, that he would inquire if he had such, and meeting the *Prætor* next day, ask'd him how many he wanted, he told him a hundred, but *Lucullus* bid him take two hundred. *See* Horace *to the same purpose.*

CHAP.

CHAP. VII.

Of the Prices of Houſes.

I Have been able to diſcover very little of the common rates of Houſe-rent; [a]There is a Paſſage in *Suetonius* that ſeems to make that of the midling people at *Rome*, in the time of *Julius Cæſar*, amount to 2000 *Nummi*, 16 *l.* 2 *s.* 11 *d.* In the other parts of *Italy* to 500 *Nummi*, 4 *l.* 0 *s.* 8 ¾ *d.*

Gronovius proves from a paſſage of *Dio*, that the latter Sum was only a Quarter's Rent.

[b] *Sylla* was reproached by his Fellow Lodger, that he was once in ſo low a Condition, that whilſt this Fellow Lodger paid 250 *Drachms*, 8 *l.* 1 *s.* 5 ½ *d.* for the uppermoſt Story, he paid for the reſt of the Houſe 750 *Drachms*, 24 *l.* 4 *s.* 4 ½ *d.* The great People of *Rome* were magnificently lodged. Yet it appears by a paſſage in [c] *Cicero*'s Oration for *M. Cælius*, that an annual Habitation or Houſe-rent of 30000 *Nummi*, 242 *l.* 3 *s.* 9 *d.* was reckon'd pretty high.

[d] The outſide of *Cicero*'s Houſe was valued at *vicies H. S.* 16145 *l.* 16 *s.* 8 *d.* [e] His Country-houſe at *Tuſculum* was ſold for 725 *Seſtertia*. 5852 *l.* 17 *s.* 3 ½. both at under Rates.

[f] *Domitius* reproaching *Craſſus* for the extravagant magnificence of

[a] Sueton. in Cæſare. Annuam etiam habitationem Romæ uſque ad bina millia nummum; in Italia non ultra quingenos Seſtertios remiſit.
[b] Plutarch in Sylla.
[c] Cicero in Orat. pro M. Cælio. Sumptus unius generis objectus eſt, habitationis, XXX millibus dixiſtis eum habitare.
[d] Cicer. ad Att. Epiſt. lib 4. Superficies ædium —— vicies H. S.
[e] Cicer. Epiſt. ad Att. lib. 1. HS. DCCXXV.
[f] Plin. lib. 17. Valer. Max. lib. 9. Cn. Domitius L. Craſſo Collegæ ſuo, altercatione ortâ, objecit quod columnas Hymettias in porticu domus haberet: quem quum continuo Craſſus quanti domum ſuam æſtimaret, interrogaret, atque ut reſpondit ſexagies Seſtertio; Quo ergo, inquit, minoris fore æſtimas, ſi decem arbuſculas inde ſuccidero? Ipſe tricies Seſtertio, inquit Domitius. Tunc ait Craſſus, uter igitur Luxurioſior eſt? ego ne qui decem columnas centum millibus nummum emi, an tu qui decem arbuſcularum umbram tricies ſeſtertium ſummâ compenſas.

of his House, offered him for it *Sexagies H. S.* 48437*l.* 10*s.* *Crassus* asked him, if he shou'd cut down ten Trees, what he would give him in that case; *Domitius* replyed, he would abate him half the Sum: Which of us then, said *Crassus*, is most extravagant; you that value the Shade of ten Trees at 24218 *l.* 15 *s.* or I a house left me by my Predecessors at twice as much? *Pliny*'s number is here corrected by *Valerius Maximus.*

It appears by a passage of *Plutarch* in the life of *Marius*, that the value of Houses in *Rome* rose considerably in a few Years: For *Marius*'s House, that was bought by *Cornelia* for [g] 7½ *Myriads* of *Drachms*, 2421 *l.* 17 *s.* 6 *d.* was in no long time afterwards purchased by *L. Lucullus* for [h] 50 *Myriads*, 200 *Drachms*, 16152 *l.* 5 *s.* 10 *d.*

[i] *Pliny* seems to intimate the extraordinary Magnificence and Increase of the value of Houses; by telling you that the House of *Lepidus*, which in the time of his Consulate was reckoned one of the finest in *Rome*, within the Space of 35 Years was not in the hundredth Rank. *Hirrius*'s Country-house which was but small, by reason of the Fish-ponds, was sold for 32291 *l.* 13 *s.* 4 *d.*

[k] *Clodius*'s House cost *centies & quadragies octies*, 119479 *l.* 3 *s.* 4 *d.*

Considering the Magnificence of their Houses, I should be apt to think that both the Materials and Workmanship were cheap. [l] *M. Lepidus*'s House was the first that had a Marble Door-case. [m] Afterwards they had gilded ones, or rather plated with Gold: [n] Then they began to case their Houses with Marble: I think it was *Mamurra, Cæsar*'s Master-Carpenter in *Gaul*, that built the first of this kind. [o] Afterwards they gilded their very Walls. [p] Within their

[g] Μυριάδων ἑπτὰ ἡμίσεως. [h] Μυριάδας πεντήκοντα καὶ διακοσίων. Plutarch. in Mario. [i] M. Lepido & Q. Catullo Coss. ut constat inter diligentissimos authores, domus pulchrior non fuit Romæ quam Lepidi ipsius: at hercule intra annos triginta quinque, eadem centesimum locum non obtinuit. Plin. lib. 36. cap. 15. [k] Publius Clodius quem Milo occidit, centies & quadragies octies domo emptâ habitavit. Plin. lib. 36. cap. 15. [l] Plin lib. 36. cap. 6. [m] Hieronymus in Epist. ad Marcellam. [n] Fabianus Papirius apud Senecam Rhetorem. Primum Romæ parietes crusta Marmoris operuisse totius domus suæ in Cælio Monte Cornelius Nepos tradidit Mamurram Formiis natum, Equitem Romanum, Præfectum fabrûm C. Cæsaris in Gallia Plin. lib. 36. cap. 6. [o] Plin. lib. 33. cap. 3. Hieronymus in Epist. ad Gaudent. Petronius, ædificant auro. [p] Parietes Tyriis & Hiacynthinis & illis regiis velis, quæ vos operose resoluta transfiguratis, pro picturâ abutuntur. Tertullian. De Habitu Mulierum.

their Houses were costly Hangings, of *Tyrian* Dye. [q] Marble Pillars with gilded Capitals. [r] The *Villa Gordiana* had a Peristile of 200 Pillars. [s] They had Fountains of variegated Marble in their Rooms. [t] Their Houses stood upon as much Ground as their Ancestors were allowed for Estates, *viz.* four *Jugera*, or 2½ *English* Acres. [u] There were private Houses like Cities. [x] They had Orchards and Woods on the Tops of their Houses, besides that they were of an immoderate height, [y] which was confined afterwards by *Augustus* to 70 *Roman* Feet, and [z] by *Trajan* to 60.

It appears from some fragments of a Plan of *Rome*, made in the time of *Septimius Severus*, that there were a great many *Insulæ* or Islands, which consisted not always of one great Palace, but likewise of Houses of Artificers joined to it. The Magnificence of *Rome* was extreamly encreas'd in *Augustus*'s Reign, who, as it is commonly said, *Luteam invenit, Marmoream reliquit,* that he found it Brick, and left it Marble. We know little of the form either of the outside or the inside of these palaces; we have the names of several parts of them, as the *Vestibulum*, *Atrium*, *Triclinia*, *Cœnationes*, *Cœnacula*; and we can judge from passages of Authors, such as those above-mentioned, that they were very magnificent. What the *Romans* called *Vestibulum*, was no part of the House, but the Court or Landing-place between it and the Street; which *Gallus apud Aulum Gellium* explains thus, *Vestibulum esse dicit non in ipsis ædibus, neque partem ædium; sed locum ante januam domus vacuum per quem a via aditus accessusque ad ædes est. Cum dextra sinistraque januam tecta sunt viæ juncta, atque ipsa janua procul via est area vacanti intersita.* *Suetonius* tells us, that the *Colossus*, a Statue of *Nero*, 120 Feet high, stood in the *Vestibulum*, which was so large that it had three *Portico's*, each a Mile in length. *Tanta laxitas ut Porticus*

[q] Hieronymus ad Gaudent. [r] Capitolinus in Gordiano. [s] Statius in Tyburtino
An pictas...à lucentia marmora venâ
...
[t] Valerius lib. 4. cap. 4. Ei quatuor jugera aranti non solum dignitas patris-familias consistit, sed etiam Dictatura delata est.—— Anguste se habitare nunc putat, cujus domus tantum patet, quantum Cincinnati rura patuerunt.
[u] Salvianus in Ecclesia Cathol. Ædificia privata laxitatem Urbium magnarum vincentia.
[x] Seneca Epist. 122. Non vivunt contra naturam? qui pomaria in summis turribus serunt, quorum silvæ in tectis Domorum ac fastigiis nutant. [y] Strabo lib. 5. [z] Aurelius Victor in Epitome.

ticus triplices milliares haberet. These three Courts it seems were called the *Vestibulum.* The *Atrium* was a part of the Building, and distant from the *Vestibulum, Virgil. Æneid.* 1.

Crateras magnos statuunt & vina coronant.
Fit strepitus tectis, vocemque per ampla volutant
Atria.

Servius on this passage tells us that *Virgil* alludes to the Custom of the ancient *Romans,* who of old, as *Cato* informs us, *in Atriis duobus ferculis epulabantur,* supp'd in the Porch on two Dishes.

Their eating Rooms were called *Cœnationes, Cœnacula, Triclinia.* In a passage of the Description of *Pliny*'s Country-house there are mention'd *duæ diætæ,* two little eating Rooms, which are distinguish'd from the *Cœnatio,* a great supping Room, or as we call it dining Room. Authors place the *Cœnaculum* at the top of the House, it was the Term for the eating Room of the lower sort of people. Every body knows that the *Triclinium* was so called from the Figure and Beds on which the Guests lay in a recumbent posture. It is used most frequently for the Table and Beds, sometimes for the *Cœnatio* or Room it self. Their Bed-chambers were called *Cubicula.* It is thought they had no Chimneys, but were warm'd with Coals on Brasiers. It has been a great question among the Antiquaries, whether the Ancients had Chimneys; a negative Argument is, that *Vitruvius* has left us no Description of the manner of their Construction. It is certain the poorer sort let the Smoak go out at the Window. *Cato* speaks of anointing the wood with a certain *Amurca,* Foam of Oyl, which kept it from smoaking, which seems to me impossible. That they made Fires of wood it's certain. *Horat.* 1. *Car.* 9.

Dissolve frigus, ligna super foco
Large reponens ---------

Therefore

Therefore it would ſeem they had ſome paſſage for the Smoke. *Ulyſſes* in *Calypſo*'s Cave longed to ſee the Smoke of the Houſes of *Ithaca*. *Suetonius* tells us, that when *Vitellius* was inaugurated, the Chimney firſt took fire, and then the Dining-room. *Cum ignis ſtatim Caminum incendiſſet, Triclinium deinde abſumpſit.* And the word in modern Languages ſignifying Chimney, comes from *Caminus*. That which made Chimneys ſo rare amongſt the ancient *Romans*, was their manner of warming their Houſes, as *Seneca* tells us *Epiſt.* 90. *Per impreſſos parietibus tubos per quos circum funderetur calor, qui ima ſimul & ſumma feriret æqualiter*, by Pipes buryed in the Walls, which from one great Fire warm'd all the Rooms equally.

There are likewiſe diſputes about the Windows of the Ancients; that they had Windows is certain. The Light was let in by a tranſparent Stone called *Speculum*. *Seneca* ſpeaks of it as an invention of his time. This Stone was us'd by the younger *Pliny* in his Country-Houſe Thoſe Stones were dug in *Segobriga* in *Spain*, as *Pliny* tells us *lib.* 22. *cap.* 33. And afterwards in *Cyprus*, *Cappadocia*, *Africa* and *Sicily*. *Nero* within his golden Palace built a Temple of this Stone, which receiv'd Light enough in the day-time without any Windows. This Stone might be a ſort of *Alabaſtre*, but more tranſparent than ours, which does not grow pellucid till it is cut very thin. The moſt common Materials of ancient Windows, was thin Canvaſs or Cloth. *Montfaucon* ſpeaks of a Book that was going to be publiſh'd by one *Bonarota* a *Florentine* Senator, which proves that the Ancients had Glaſs Windows. I have not ſeen that Treatiſe, and conſequently cannot judge of his Reaſons. I am of M. *Perrault*'s Opinion, that the polite *Auguſtus* had neither a Shirt to his Back, nor Glaſs to his Windows.

The Furniture of their Houſes muſt have been coſtly. *Martial. Epigr. in Quintum* tells us that *Quintus*'s Furniture, which was but in a narrow Compaſs, coſt him above 8072 *l.*

Conſtat decies tibi non ſpatioſa Supellex.

They were nice and coftly in their Chairs and Lamps. Their *Lecti Cubiculares*, or their Beds for fleeping, fo called to diftinguifh them from their *Tricliniares* or Dining-beds, came at laft to be very coftly, with Feet of Ivory, Silver, Gold, and precious Stones. And their Mattreffes were made of Feathers, Straw and other Herbs; fometimes of Furs, which came from *Gaul*: they were rais'd fo high, as to be mounted on by Steps, as *Pliny* tells us, *lib.* 20. There is no mention made of their having Curtains.

It is fomewhat foreign to my prefent purpofe to enter into the Expences of the publick Buildings; [a] the Reader may fee at the bottom of the Page a Defcription of *M. Scaurus*'s Theatre by *Pliny*. I am not Architect enough to give the Reader a right *Idea* of it; only fo far we may gather from the defcription, that there was a triple Scene in height one above another, confifting of 360 Pillars, the loweft of Marble, the middle of Glafs, (by an unheard-of piece of Luxury, as the Author expreffeth it) and the upper of *Tabulæ inauratæ*, which I cannot tell how to tranflate; the literal Senfe is gilded Tables or Pictures; for *Harduin*'s *Pliny* hath in this place a different reading from the others. The loweft Row of Pillars were 42 Feet high, and there were 3000 brazen Statues betwixt the Pillars: the Theatre held 80000 Men. It was the fame *M. Scaurus* who having carried fome of his fuperfluous Furniture and Stores to his Country-Houfe at *Tufculum*, which by the malice of his Slaves was burnt, loft in that one Article *Millies H. S.* or 807291 *l.* 13 *s.* 4 *d.*

Pliny prefers this Theatre to *Nero's* golden Houfe, which muft have coft an immenfe Sum, fince [b] *Otho* laid out in finifhing fome part of it *quingenties H. S.* 403645 *l.* 16 *s.* 8 *d.*

It

[a] Scena ei triplex in altitudinem 360 columnarum, in ea civitate, quæ fex Hymettias non tulerat fine probro civis ampliffimi. Ima pars Scenæ e marmore fuit: media e vitro, inaudito etiam poftea genere Luxuriæ: fumma e tabulis inauratis. Columnæ, ut diximus, imæ duodequadragenum pedum. Signa ærea inter columnas, ut indicavimus, fuerunt tria millia numero. Cavea ipfa cœpit hominum LXXX millia: cum Pompeiani Theatri toties multiplicatâ urbe, tantoque majore populo, fufficiat large quadraginta millibus. Sed & reliquus apparatus, tantus Attalica vefte, tabulis pictis, cæteroque choragio fuit, ut in Tufculanum villam reportatis quæ fuperfluebant quotidiani ufus deliciis, incenfa villa ab iratis fervis, concremaretur ad H-S millies. Plin. 36. cap. 15. [b] Nec quicquam prius pro poteftate fubfcripfit, quam quingenties feftertium ad peragendum auream domum.

It is commonly believed that the *Romans* had the art of gilding after our manner, but some sort of their inauration or gilding must have been much dearer than ours, since the gilding of the Capitol cost 12000 *Talents*, 2.325000 *l.*

CHAP. VIII.

Of the Price of Land.

I Have endeavour'd, by comparing passages of Authors together, to get some light into the price of Lands, and the yearly rent of them. No doubt there were lands of different values, according to their different goodness and situation: yet there are some things mentioned of middle prices, which will shew us in what proportion the value of their Lands stood in regard to those of our own Country.

[a] *Columella* says, that a Vine-dresser who could look after 7 *Jugera*, was commonly sold for 8000 *H.S.* 64 *l.* 11 *s.* 8 *d.* A Sum which he saith was sufficient to buy 7 *Jugera* of indifferent Land: consequently the *Jugerum* of such Land was worth 9 *l.* 4 *s.* 6 ½ *d.*

The *Roman Jugerum* was to the *English* Acre near as 10 to 16; at this rate the *English* Acre of such Land was worth 14 *l.* 15 *s.* 3 *d.*

[b] *Pliny* mentions the purchase of a Vineyard in the *Nomentan* Land, which at a cheap rate came to 60000 *H.S.* 4843 *l.* 15 *s.*

Budæus reckons it was a *Centuria.* The [c] *Centuria* consisted at first of 100 *Jugera*; afterwards, by a continuation of the same

 word,

[c] Plutarch. in Publicola.

[a] Vinitor licet sit emptus sex vel potius Sestertiis octo millibus, cum ipsum solum septem jugerum totidem millibus nummorum partum sit. Columell. *lib.* 14. [b] Vide Plinium lib. 14. cap. 4. & Budæum de Asse. lib. 4.

[c] Centuriam nunc dicimus (ut *Varro ait*) ducentorum jugerum modum; olim autem ab centum jugeribus vocabatur centuria, sed mox duplicata nomen retinuit.

word, and an impropriety of Speech, it came to be reckon'd 200 *Jugera*: tho' according to *Cato*, a *Centuria* of a Vineyard consisted still of 100 *Jugera*. At this rate, a *Jugerum* of this Vineyard came to 48 *l.* 8 *s.* 9 *d.* And an *English* Acre to 77 *l.* 10 *s.*

[d] There is another passage in *Columella*, which makes the common or middle yearly Rent of a *Jugerum* of Pasture, Meadow or Copse Land 16 *s.* 1 $\frac{1}{4}$ *d* in *Italy*. At this Rate the Rent of an Acre comes to 1 *l.* 5 *s.* 10 *d.*

[e] Land was reckon'd commonly at 25 Years Purchase, for the Lands of the Government were so let, paying according to the Rate of 4 *per Cent.*

[f] A Purchase of 500000 *Nummi* paid 20000 *Nummi* a Year: at this rate, according to the foremention'd Rent, the Purchase of an *English* Acre of such Land, was worth 32 *l.* 5 *s.* 10 *d.*

[g] There is a passage in *Varro*, which gives further light in this matter. He introduces *Merula* affirming that his *Villa* brought him in yearly by fat Birds 60000 *Nummi*, 484 *l.* 7 *s.* 6 *d.* which is twice as much (saith he) as the Rent of your two hundred *Jugera* at *Reate*; consequently 200 *Jugera* brought *Axius*, (that was the Proprietor's name) the half of that Sum, *viz.* 242 *l.* 3 *s.* 9 *d.*

Then the yearly Rent of a *Jugerum* was 1 *l.* 4 *s.* 2 $\frac{1}{4}$ *d.*

At this rate, the Rent of an *English* Acre comes to 1 *l.* 18 *s.* 8 *d.* which reckon'd at 25 Years purchase would make it worth *per* Acre 48 *l.* 6 *s.* 8 *d.*

Tully mentions in his Epistles to *Atticus* a very cheap Purchase, as an instance of the badness of the times, it comes *per* Acre only to 1 *l.* 9 *s.* 8 *d.*

[h] The price of Land was considerably increased by the great Treasure that was brought to *Rome* in *Augustus*'s Reign.

As

[d] Prata, Pascua & Sylvæ, si centenos sestertios singula jugera efficiant, optime Domino consulere videntur. Colum. lib. 3. [e] Hygen. de Limitibus. Vectigal ad rationem usuræ trientes. [f] Plin. lib. 7. Epistolarum. [g] Varro lib. 3. cap. 2. Atque in hac villa qui est Ornithon, ex eo uno quinque millia scio venisse Turdorum denariis ternis, ut sexaginta millia ea pars reddiderit eo anno villæ, bis tantum quam tuus fundus ducentum jugerum Reate reddit. [h] Sueton. in Augusto. Invecta urbi Alexandrina triumpho Regia gaza tantam copiam rei nummariæ effecit, ut fœnore diminuto, plurimum agrorum pretii accesserit.

As to the value of Ground in the City, there is a remarkable passage in [i] *Suetonius,* he tells you that the Ground upon which *Cæsar* built his *Forum,* cost *Millies H. S.* 807291 *l.* 13 *s.* 4 *d.*

I cannot well say what were the Dimensions of this *Forum,* but it must have been less than the *Circus* built by *Cæsar,* of which [k] *Pliny* hath given the dimensions, *viz.* 3 *Stadia* in length, and one in breadth, and after this he adds that the whole with Buildings round, stood only on four *Jugera,* which must be a false reading, and I wonder that Authors have not observed it; for instead of *Jugerum quaternum,* it ought to be *quadraginta.* There are in a *Roman Stadium* 625 *Roman* Feet, consequently 3 times that number, multiplied in it self, makes an oblong of 1171875 square *Roman* Feet, this divided by 28800 makes above 40 *Roman Jugera.* It's true the *Circus* it self or the *Ellipsis* inscribed within that oblong would not perhaps be above 32 *Jugera,* but since he reckons in the buildings about, which it's likely took up the whole Space, the computation at 40 *Jugera* is pretty exact. Now reckoning the *Forum* of the same bigness, altho' it could not be near so much; and that it stood upon 40 *Roman Jugera,* that is, 25 *English* Acres of Ground, it would make it *per* Acre, about 32291 *l.* and the yearly Rent *per* Acre, at 25 Years purchase, or 4 *per Cent.* would be near 1292 *l.* 1292 Feet in Front, and about $33\frac{5}{7}$ deep makes an Acre; at this rate an Acre of this *Forum* would bring in Ground-rent 20 Shillings a foot. But the *Forum* was not near so spacious, for the Antiquaries for some reason or another make it the least of all the *Fora.* And indeed, comparing it with the draught of *Nerva's Forum,* it could not take up 2 Acres: but allowing it 5; at this rate a Foot in Front, and $33\frac{5}{7}$ deep, would be five times as dear, that is, would bring in a Ground-rent of 5 Pound.

i Sueton. in Cæsare. Forum de manubiis inchoavit: cujes area super H S. millies constitit. k Nam ut Circum maximum a Cæsare Dictatore extructum, longitedine stadiorum trium, latitudine unius, sed cum ædificiis jugerum quaternûm (*quadraginta*) ad sedem CCLX millia hominum inter magna opera dicamus.

CHAP.

CHAP. IX.

The Price current of Drugs, as they stood at Rome, *most of them in* Pliny's *Time per* Roman *Pound, which is* ¾ *of the* English Averdupois.

[a] S*Andarach per* Pound, 5 *Asses*, 3 ⅞ *d.*

[b] *Sinopis*, a sort of *Rubrick* or *Rudle*, 8 *Asses*, 6 ⅓ *d.*

Ditto the better sort, 30 *Asses*, 1 *s.* 11 ¼ *d.*

[c] *Armenian* purple 30 *HS.* 4 *s.* 10 ⅛ *d.*

[d] *Indian* Purple from one *Denarius*, or 7 ¾ *d.* to 30 *Denarii*, 19 *s.* 4 ½ *d.*

[e] *Pelagium*, the Juice of one sort of Fishes that dyed Purple, 50 *HS.* 8 *s.* 0 ⅞ *q.*

[f] *Buccinum* the Juice of the other Fish that dyed purple, 100 *HS.* 16 *s.* 1 ¾ *d.*

Harduin reads these two passages not of the Pound, but the 100 Pounds. For the Sense of *Pliny* in that place is, that it was surprizing that the purple Dye should be so dear, when the Drug that it was made of was so cheap.

Pliny says, that to dye 50 Pounds of Wool, was required 200 Pounds of *Buccinum*, and 110 of the *Pelagium*: that proportion of Mixture making the true Dye. According to the first reading, by the Pound Weight, it would make the dying of a Pound come to 4 *l.* 2 *s.* 4 ½ *d.* which in the Chapter about Cloaths was reckoned by the *English* Pound. There is some Mistake in the numbers of

[a] Plin. lib. 35. cap. 6. Asses quini in libras. [b] Ibid. Asses octoni in libras. [c] Ibid. Triginta nummi in libras. Ibid. cap. 5. A singulis denariis ad triginta. [e] Lib. 9. cap. 40. quinquaginta nummi. [f] Ibid. centeni nummi.

of *Pliny* in this Place. And instead of L, which *Harduin* puts in at a venture, it would be more consistent if you put in a C, which you see would reduce it to half price: [g] for *Pliny* makes the price of the Violet-purple 3 *l.* 4 *s.* 7 *d.* which I believe is to be explained of the Pound of Wool dyed.

[h] *Cinnabar* 50 *HS.* 8 *s.* 0 $\frac{7}{8}$ *d.*

Tarentine red purple, price not mentioned.

[i] The *Tyrian* double Dye, 1000 *Denarii*, 32 *l.* 5 *s.* 10 *d.*

[k] *Melinum*, a sort of Colour that came from *Melos*, one *Nummus*, 1 $\frac{11}{16}$ *d.*

[l] *Paretonium*, a sort of Colour that came from *Ægypt*, very lasting, 6 *Denarii*, 3 *s.* 10 $\frac{1}{2}$ *d*

[m] *Ladanum* a Gumm, 40 *Asses*, 2 *s.* 7 *d.*

[n] *Opopanax*, 2 *Denarii*, 1 *s.* 3 $\frac{1}{4}$ *d.*

[o] Gum *Ammoniack*, 40 *Asses*, 2 *s.* 7 *d.*

[p] *Galbanum*, 5 *Denarii*, 3 *s.* 2 $\frac{1}{4}$ *d.*

[q] True *Bdellium*, 3 *Denarii*, 1 *s.* 11 $\frac{1}{4}$ *d.*

[r] *Myrrh sativa* from 10 *Denarii*, 6 *s.* 5 $\frac{1}{2}$ *d.* to 11 *Denarii* 8 *s.* 1 $\frac{1}{4}$ *d.*

[s] Ditto *Erythrean* from 11 *Denarii*, 8 *s.* 1 $\frac{1}{4}$ *d.* to 16 *Denarii*, 10 *s.* 4 *d.*

[t] Ditto *Troglodytick* (*nucleo, id est*) granulated, 16 *Denarii* 10 *s.* 4 *d.*

[u] Ditto sweet-scented, 14 *Denarii*, 9 *s.* 0 $\frac{1}{2}$ *d.*

[x] Frankincense, worst sort, 3 *Denarii*, 1 *s.* 11 $\frac{3}{4}$ *d.*

[x] Ditto, second sort, 5 *Denarii*, 3 *s.* 2 $\frac{3}{4}$ *d.*

[x] Ditto, best sort, 6 *Denarii*, 3 *s.* 10 $\frac{1}{2}$ *d.*

[y] *Storax*, 19 *Denarii*, 12 *s.* 3 $\frac{1}{4}$ *d.*

[z] *Chio*, white *Mastick*, 20 *Denarii*, 12 *s.* 11 *d.*

[a] Black

[g] Lib. 9. cap. 39. Libra denariis centum. [h] Lib. 3. cap. 7. quinquaginta nummi Cinnabari pretium. [i] Ibid. mille denariis in libras. [k] Lib 35. cap. 6. Sestertiis singulis in libras. [l] Ibid. Paretonii optimi libra VI denariis. [m] Plin. lib. 12 cap. 17. XL. asses pretium in libras. [n] Ibid. cap. 26. X bini. [o] Ibid. cap. 23. XL asses. [p] Ibid. cap. 26. X. V permutatur in libras. [q] Ibid. cap. 9. Bdellii sinceri Libra III. Denariis. [r] Ibid. cap. 16. X. XI. [s] Ibid. cap. 16. XI ad XVI. [t] Ibid. Troglodytici nucleo XVI. [u] Ibid. odorarii XIV. [x] Ibid. cap. 14. X. III, V, VI. [y] Ibid. cap. 25. X. XIX. [z] Ibid. cap. 17. XX Denariis.

[a] Black Pepper, 4 *Denarii*, 2 *s.* 7 *d.*

[a] White Pepper, 7 *Denarii*, 4 *s.* 6 ½ *d.*

[a] Long Pepper, 15 *Denarii* 9 *s.* 8 ¼ *d.*

[b] *Cardamomum*, 12 *Denarii*, 7 *s.* 9 *d.*

[c] *Amomum* whole, 60 *Denarii*, 1 *l.* 18 *s.* 9 *d.*

Ditto, ground or bruised, 58 *Denarii*, 1 *l.* 17 *s.* 5 ¼ *d.*

[d] *Myrobalanus*, 2 *Denarii*, 1 *s.* 3 ½ *d.*

[e] Ginger, 6 *Denarii*, 3 *s.* 10 ½ *d.*

[f] Sweet *Juncus*, 11 *Denarii*, 7 *s.* 1 ¼ *d.*

Ditto, the best, 15 *Denarii*, 9 *s.* 8 ¾ *d.*

[g] *Costus*, 16 *Denarii*, 10 *s.* 4 *d.*

[h] *Indian Spikenard*, small leaf, 75 *Denarii*, 2 *l.* 8 *s.* 5 ¾ *d.*

[h] Ditto, middle leaf, 60 *Denarii*, 1 *l.* 18 *s.* 9 *d.*

[h] Ditto, large leaf, 50 *Denarii*, 1 *l.* 12 *s.* 3 ½ *d.*

[h] Ditto, the Spike, 90 *Denarii*, 2 *l.* 18 *s.* 1 ½ *d.*

[i] Ditto, *French*, 3 *Denarii* 1 *s.* 11 ¼ *d.*

[k] *Xylocinnamomum*, 20 *Denarii*, 12 *s.* 11 *d.*

[l] The Juice of Cinnamon, that is the expressed Oyl, sometimes sold for 1000 *Denarii*, 32 *l.* 5 *s.* 10 *d.*

[m] *Isocinnamon*, a sort of *Cassia*, reckon'd equal in value to *Cinnamon*, 300 *Denarii* 8 *l.* 13 *s.* 9 *d.*

[n] *Malobathrum* had risen from one *Denarius* to 300, that is to 8 *l.* 13 *s.* 9 *d.*

The Oyl of it only 60 *Denarii*, 1 *l.* 18 *s.* 9 *d.*

Cinnamomum Camacum, the expressed Juice of a Nut, which they mixed with precious ointments, quite different from what [o] *Pliny* calls the *Succus Cinnamomi*, 40 *Asses*, 2 *s.* 7 *d.*

[p] *Sericatum*, another Oyl that they mixed in their Ointments 6 *Denarii*, 3 *s.* 10 ½ *d.*

[a] Ibid. 7. IV Denarii. VII Denarii, XV Denarii. [b] Ibid. cap. 13: XII Denarii. [c] Ibid. cap. 13. Uvæ Amomi LX Denarii, friati LVIII. [d] Ibid. cap. 21. II Denarii. [e] Ibid. cap. 7. VI Denarii. [f] Ibid. cap. 22. XI. ad XV. [g] Ibid. cap. 12. XVI Denarii [h] Ibid. cap. 12. Spicæ folium Microsphæræ LXXV Denarii. Mesosphæræ in libras LX. Hadrosphæræ L. Spicæ in libras XC Denarii. [i] Nardi Gallici libra III Denariis. [k] Ibid. cap. Xylocinnamomi pretium in libras Denarii XX. [l] Ibid. cap. 19. Succus Cinnamomi libra quondam M. Denariis. [m] Ibid. cap. 19. CCC Denarii. [n] cap. 26. Malobathri pretium prodigio simile, a singulis denariis ad CCC pervenere libras. Oleum autem ipsum in libras X. LX. [o] Plin. lib. 1. cap. 28. Asses XL. [p] Ibid. cap 25. VI Denarii.

[q] *Oleum Cyprinum*, made of an *Ægyptian* Tree, 5 *Denarii*, 3 *s.* 2 ¼ *d.*

[r] *Asparathos*, a root used for precious Ointments, 5 *Denarii*, 3 *s.* 2 ¼ *d.*

[s] *Opobalsamum*, 300 *Denarii* the *Sextarius*, *per English* Pint 8 *l.* 2 *s.* 1 ¾ *d.* This was the price as it was sold by the Publick: [t] but as it was adulterated, it brought the owners *per* Pint 27 *l.* 0 *s.* 4 ½ *d.*

[u] There was likewise a *Xylobalsamum*, which was an Oyl made of the boiling of the *Sarmenta* of the Tree, that was sold for 6 *Denarii*, 3 *s.* 10 ½ *d.*

[x] The Oyl of the *Sesama*, an *Indian* grain and used for Sauce, *per* Pint 5 *s.* 6 *d.*

[y] *Garum*, a Sauce made of Fish, much used by the *Romans*, *per* Pint, 11 *s.* 5 ¾ *d.*

CHAP. X.

Of the Price of Slaves.

ANother way of determining the quantity of their Riches is, by finding out the price of Labour, and the value of certain pieces of Workmanship. In order to come at that, we must begin with the prices of their Slaves.

[a] The price of an ordinary Slave in *Cato major*'s time was 375 *Drachms*, 48 *l.* 8 *s.* 9 *d.*

It was a principle with him not to entertain any that was delicate, but strong Fellows fit for country Labour.

[q] Ibid. cap. 24. V Denarii. [r] Ibid. V Denarii. [s] Plin. lib. 5. cap. 25. [t] Plin. lib. 12. cap. 25. [u] Ibid. cap. 25. VI Denarii. [x] Quint. Curti. lib. 5. CCXL Denarii, Amphora. [y] Plin. lib. 31. cap. 8. singulis millibus nummum permutantibus congios fere binos. [a] Plutarch in Catone majore.

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[b] The price of a Vine-dresser was 8000 *Sestertii*, 64 *l.* 11 *s.* 8 *d.* Those were common prices; but such as exercised more polite Arts, and were entertained for Fancy and Luxury, were much dearer.

The *Anagnostæ* Slaves, or such as could read, were dear. One [c] *Calvisius Labinus*, who thought he could purchase the Character of a learned Person by having a learned Equipage, bragg'd that he had several such *Anagnostæ* Slaves, none under 100000 *Nummi*, 807 *l.* 5 *s.* 10 *d.*

[d] *Julius Cæsar*, who was really skilled in polite arts without Affectation, bought several such Slaves at very great prices.

[e] *Pliny* reckons the highest price that ever was paid for a man born in Slavery, was for *Daphnis* the Grammarian. There are several different readings of this passage, but *Harduin* reads it *Sestertiis septingentis*, which makes the price at 5651 *l.* 0 *s.* 10 *d.* Yet afterwards he mentions a much higher price, [f] *viz.* that for which *Nero* manumitted the *Dispensator* of *Tiridates*. (*Dispensator* according to the way of speaking of that time was properly a Cash-keeper or Privy-purse.) In *Harduin*'s *Pliny* it amounts to *Centies tricies H. S.* 104947 *l.* 18 *s.* 4 *d.*

But *Pliny* adds this was not as a bargain of civil Commerce, but the price of a Prisoner of war.

Among Slaves who exercised polite arts, none sold so dear as Stage-players or Actors, which [g] *Pliny* saith was not to be wondered at, since they gained so much to their Masters. *Roscius* particularly could gain yearly 500 *Sestertia*, 4036 *l.* 9 *s.* 2 *d.* [h] and *per diem* when he acted 4000 *Nummi*, 32 *l.* 5 *s.* 10 *d.*

The numbers in *Cicero*'s Oration for *Roscius* are uncorrect.

[i] *Callio-*

[b] Columella lib. 3. octo millibus sestertiis Vinitor emptus. [c] Seneca lib. 4. Epist. ad Lucilium. Ut Grammaticos haberet Analectos cum dixisset Sabinus, centenis millibus sibi constare singulos servos. [d] Suetonius in Cæsare. Servitia recentiora politioraque immenso pretio comparavit. [e] Plin. lib. 7. cap. 39. Pretium hominis in servitio geniti maximum ad hanc diem (quod equidem compererim) fuit Grammaticæ artis Daphni, Gnatio Pisaurense vendente, & M. Scauro Principe civitatis Hr. DCC. licente. [f] Plin. ibid. Hr. CXXX. manumisit. [g] Plin ibidem. Quippe cum jam apud majores Roscius Histrio ℌr. D. annua meritasse prodatur. [h] Macrobius.

[i] *Calliodorus* mentioned by *Martial* ſold his Slave for a Supper very cheap, 10 *l.* 10 *s.* 8 $\frac{3}{4}$ *d.*

[k] A *Morio*, or Fool, was ſold for 161 *l.* 9 *s.* 2 *d.*

[l] The price of Slaves was regulated afterwards by *Juſtinian* at much lower Rates. The loweſt at 10 Solids, and the higheſt at 80. The Solids were the *Aurei* of that time, and 100 Solids made *dena*, or 10 *Seſtertia*, *viz.* 80 *l.* 14 *s.* 7 *d.*

But according to the weight of them, and the value of Gold at this time, they would be worth 87 *l.* 8 *s.* 6 $\frac{2}{5}$ *d.*

We ſhall chuſe the ancient proportion; ſo that it may be ſaid according to *Juſtinian*'s regulation, the loweſt price of a Slave was 10 *Solids*, 8 *l.* 1 *s.* 5 $\frac{1}{2}$ *d.* And the higheſt, 80 *Solids*, 64 *l.* 11 *s.* 8 *d.*

[m] For Example, the price of a Slave, Man or Woman, under ten years old, was 8 *l.* 1 *s.* 5 $\frac{1}{2}$ *d.*

[n] The price of one above ten years old, was double that, *viz.* 16 *l.* 2 *s.* 11 *d.*

[o] The Price of Slaves of both Sexes that had Trades, was 30 *Solids*, 24 *l.* 4 *s.* 4 $\frac{1}{2}$ *d.*

[p] That of Eunuchs under ten Years old was the ſame, *viz.* 24 *l.* 4 *s.* 4 $\frac{1}{2}$ *d.*

[q] The price of *Servi Notarii*, and Eunuchs above ten years old, was 50 *Solids*, 40 *l.* 7 *s.* 3 $\frac{1}{2}$ *d.*

[r] The price of an Eunuch, if a Tradeſman, was 70 *Solids*, 56 *l.* 10 *s.* 2 $\frac{1}{2}$ *d.*

The Expences of the ancient *Romans* in Slaves muſt have been very great, for they had Trains of them as big [s] as Armies, [t] 10 or 20000 Slaves, not for Gain but Show.

i Addixti ſervum nummis here mille trecentis,
Ut bene cœnares Calliodore ſemel.
Mart. lib. 10. Epigr.

k Morio dictus erat: viginti millibus emi.
Redde mihi nummos Gurgiliane, ſapit.
Martial.

l Juſtinianus in lege ſedecim. Minimum autem pretium non infra viginti ſolidos, maximum non ſupra octoginta.

m Lib. 37. de peculio, &c. L. 3. C. commun. de legat. & fidei Commiſſis.

n Lib. 6. C. conſtitut. 43.

o Lib. 6. Cod. conſtit. 43.

p Ibid.

q Ibid.

r L. 3. C. commun. de Legat. & commiſſ.

s Hieronymus. Epiſt. ad Furiam.

t Athenæus lib. 6. μυρίας καὶ δὶς μυρίας.

CHAP. XI.

Of the Prices of Pictures, Statues, and other Pieces of Workmanship, of Arts, Professions, &c.

THE *Romans* at first were very ignorant of the value of Pictures; and even as low down as *A. U.* 565. [a] *L. Mummius* sirnamed *Achaicus*, seems to have been no great *Virtuoso* in this way. For when King *Attalus* offered to redeem the Picture of *Bacchus*, painted by *Aristides*, for what *Pliny* calls *sexies Sestertium*, or 4843 *l.* 15 *s.* *L. Mummius* imagining there was some wonderful vertue in the Picture, stopt it, to the great discontent of that King. [b] *Pliny* in another place speaking of a Picture of *Aristides*, saith it was bought or redeemed by King *Attalus* for 100 *Talents*, 19375 *l.* Whether it were the same Picture or not, with a mistake of the price in one place, I will not determine.

Afterwards the *Romans* came to be better acquainted with the value of Pictures. [c] The *Medea* and *Ajax* of *Timomachus* were bought by *Julius Cæsar* for 80 *Talents*, 15500 *l.*

[d] *Hortensius* paid for *Cydia*'s *Argonauts* *H-S.* $\overline{\text{CXLIV}}$. 1162 *l.* 10 *s.*

[e] *Agrippa* purchased two pieces of *Ajax* and *Venus* from the *Cyzicenians* for a small price, *viz.* 12000 *Nummi*, 96 *l.* 17 *s.* 6 *d.*

And

[a] Nam cum in præda Rex Attalus VI millia Sestertium emisset Aristidis Tabulam Liberum Patrem continentem, pretium miratus, suspicatusque aliquid in eâ virtutis, quod ipse nesciret, revocavit Tabulam, Attalo multum querente. [b] Plin. lib. 7. cap. 38. Aristidis Thebani pictoris unam Tabulam centum Talentis Rex Attalus licitatus est. [c] Plin. ibid. —— octoginta Talentis. [d] Plin. lib. 35. cap. 11. [e] Plin. ibidem. Verum eadem illa torvitas tabulas duas Ajacis & Veneris mercatus est a Cyzicenis HS. XII. M.

And yet every body wondered that a man of his rough Temper would give so much.

[f] The *Venus Anadyomene* (that is, issuing out of the Sea) was valued at a hundred *Talents* (for so much Tribute was remitted for it) 19375 *l.*

[g] The *Archi-Gallus* or High-Priest *Parrasius*, which *Tiberius* was so fond of, was valued at 60 *Sestertia*, 484 *l.* 7 *s.* 6 *d.*

[h] *L. Lucullus* bought the Copy of *Glycera*, *Pamphilus*'s Maid, the Original being painted by *Pamphilus* himself, for two *Talents*, 397 *l.* 10 *s.*

And to mention some prices given by the *Greeks*; [i] the 12 Gods of *Asclepiodorus* were purchased by *Mnason* the Tyrant for 30 *Minæ*, or 96 *l.* 17 *s.* 6 *d.* a-piece, the whole dozen amounting to 1162 *l.* 10 *s.*

This was no great price for a Piece of a Painter, whom *Apelles* himself admired for the Correctness of his drawing.

[i] The same *Mnason* paid more for his Heroes than his Gods, he gave to *Theomnestus* the Painter for each of them 100 *Minæ*, 322 *l.* 18 *s.* 4 *d.* The dozen of Heroes came to 3875 *l.*

[k] *Aristides* was employed to draw *Alexander*'s Battle with the *Persians*, in which there were a hundred figures, and bargained for no more than 10 *Minæ* a figure, which amounted in all to 3229 *l.* 3 *s.* 4 *d.*

Aristides was reckon'd the first man for Expression, but hard in his Colouring.

[l] *Apelles* was paid for his *Alexander* holding the Thunder (which was put up in the Temple of *Diana* at *Ephesus*) in weight, not in tale,

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[f] Strabo lib. 14. φασὶ δὲ τοῖς Κώοις ἀντὶ τῆς γραφῆς ἑκατὸν ταλάντων ἄφεσιν γενέσθαι τοῦ προσταχθέντος φόρου. [g] Plin. lib. 35. cap. 10. Pinxit & Archigallum, quam picturam amavit Tiberius Princeps, atque ut author est Decius Eculio, LX sestertiis æstimatam, cubiculo suo inclusit. [h] Plin. lib. 35. cap. 11. Hujus Tabulæ Exemplar, quod apographon vocant, L. Lucullus duobus talentis emit. [i] Plin. lib. 35. cap. 10. Eadem ætate fuit Asclepiodorus, quem in Symmetria mirabatur Apelles, huic Mnason tyrannus pro duodecem Diis dedit in singulos mnas tricenas: idemque Theomnesto in singulos Heroas mnas centenas. [k] Plin. lib. 35. cap. 10. Idem (Aristides) pinxit prœlium cum Persis, centum homines ea Tabulâ complexus, pactusque in singulos mnas denas a Tyranno Elatensium Mnasone. [l] Plin. lib. 35. cap. 10. Pinxit & Alexandrum magnum, fulmen tenentem, in Templo Ephesiæ Dianæ, viginti talentis.

20 Talents of Gold, *viz.* according to the decuple proportion 38750 *l.* It would come to more if reckoned according to our proportion betwixt Gold and Silver. But *Harduin* reads *Talents* of Silver only.

I have mention'd some of the foregoing prices of Pictures, to shew the mann'.of Painters bargaining by the number of figures.

[m] *Nicias* the Painter refused for *Necromantia Homeri*, 60 *Talents*, 11625 *l.*

The *Romans* seem to have been better furnished with Statues and carved work, than fine Pictures. [a] There are multitudes of such pieces recorded by *Pliny*, with the prices of very few of them. But we may easily conjecture they must have been pretty high; for a people so rich and so luxurious, would not balk their fancy in such things. The most of their Statues were either brought from abroad, or made by *Greek* Artificers. Such of them as by the quantity or fineness of the Mettal were of immoderate prices, are not proper instances of the value of fine Workmanship, yet we shall mention some of them, because they are examples of Magnificence.

[b] In the time of the Consulate of *Mutianus*, there were reckon'd at *Rhodes* 300 famous Statues, and as many at *Athens*. [c] The *Colossus* of the Sun at *Rhodes*, which *Chares Lindius* made, was 70 Cubits high, which, reckoning according to the *Greek* Measure, is 105 $\frac{12}{25}$ *English* Feet, and was made in twelve Years for 300 *Talents*, that is, 58125 *l.*

[d] There were a hundred other lesser *Colossi* in the same City.

[e] There was a *Colossian* Statue at *Tarentum* made by *Lysippus*, who was *Chares*'s master, of 40 Cubits high, or about 60 $\frac{12}{25}$ Feet.

[f] The Statue of *Apollo* in the Capitol, brought from *Pontus* by *Lucullus*, was 45 $\frac{1}{3}$ Feet high, it cost 150 *Talents*, 29062 *l.* 10 *s.*

[g] The

Plin. l. 35. cap. 10. Hanc (Necromantiam Homeri) vendere noluit Attalo Regi Talentis sexaginta. [a] Plin. lib. 35. cap. 7 & 8. [b] Plin. ibid. [c] Plin. ibid. Solus Colossus Rhodi quam fecerat Chares Lyndius, Lysippi discipulus, septuaginta Cubitorum altitudinis fuit: duodecim annis tradunt effectum CCC Talentis. [d] Plin. ibid. sunt alii minores in eadem urbe Colossi centum. [e] Plin. ibid. Talis & Tarenti factus a Lysippo XL cubitorum. [f] Plin. ibid. XXX cubitorum CL talentis factus,

[g] The *Mercury* of *Zenodorus*, ſet up in the City of *Auvergne*, which *Pliny* ſaith exceeded all Statues in bigneſs in his time, and was ten years in making, coſt the Workmanſhip only 400 *Seſtertia*, 3229 *l.* 3 *s.* 4 *d.*

[h] There was collected for a Statue of an ordinary Size, 1259 *l.* 3 *s.* 4 *d.* which *Cicero* reckons too high a price, as appears by a paſſage of his *contra Verrem.* There are very low prices of other Statues mentioned in the ſame Orations,

[i] As, ſome Statues of *Praxiteles, Myro* and *Polycletes,* for 52 *l.* 9 *s.* 2 ¾ *d.*

[k] The *Cupid* of *Praxiteles* was purchaſed for 12 *l.* 18 *s.*

There are ſome pieces of workmanſhip mentioned in *Cicero*'s action againſt *Verres,* but the prices charged by him were ſo extravagant, and what he paid was ſo little, that there is nothing to be inferred from them.

[l] For example, he was accuſed by *Cicero* for charging for a piece of Work 560000 *HS.* 4520 *l.* 16 *s.* 8 *d.* which could have been done as well for 80000 *HS.* 645 *l.* 16 *s.* 8 *d.*

[m] In this paſſage he affirms that three as large Pillars, as that which he ſet up, might have been placed with long carriage paid, for 40000 *HS.* 322 *l.* 18 *s.* 4 *d.* which is a pretty high price, being above 100 *l.* a Pillar.

[n] *Craſſus* paid for his 10 Pillars, 100000 *HS.* 807 *l.* 5 *s.* 10 *d.*

[o] By ſuch methods it was no wonder that *Verres* grew rich, having plundered and extorted to the value of 40000000 *HS.* 322916 *l.* 13 *s.* 4 *d.*

[p] And his Secretary, by his Maſter's connivance, to the value of 1300000 *HS.* 10494 *l.* 15 *s.* 10 *d.*

[q] To

[g] Plin. ibid. verum omnem amplitudinem ſtatuarum ejus generis vicit ætate noſtrâ, Zenodorus, Mercurio facto in Civitate Arvernis, per annos decem, HS. CCCC. immani pretio. [h] Cicer. in 3. Verr. XXXIX Millia denarios. [i] Plinius. [k] Idem. [l] Cicero in Verrina prima. Addicitur id opus HS. DLXM. cum Tectores HS. LXXX millibus id opus ſe effecturum clamarent. [m] Cicer. ibid. In ædibus privatis longæ difficiliſque vecturæ columnæ ſingulæ ad impluviem LL-S. quadragenis millibus locatæ ſunt. [n] Val. Max. lib. 9. Decem columnas centum millibus nummum. [o] Cicero in Verr. HS. quadringenties contra leges abſtulit. [p] HS. tredecies Verris ſcriba permiſſu Domini ex pecunia publica abſtulit. Cicer. in frumentaria Verr.

[q] To return to the value of Statues. *Lucullus* bought the *Protoplasma* or Model of *Venus genetrix*, for 60 *Sestertia*, 484 *l.* 7 *s.* 6 *d.* This was made by *Arcesilaus*, who was in so great repute, [r] that a Model of Paste, of a Cup that he was making for one *Octavius* a *Roman* Knight, was purchased for a *Talent*, 193 *l.* 15 *s.*

This naturally leads me to say something of the price of the Workmanship of their Plate. [f] *C. Gracchus* bought silver *Dolphins* at 5000 *HS.* 40 *l.* 7 *s.* 3 ½ *d.* the Pound.

[f] *Crassus* bought two silver Boats graved by *Mentor*, for 100 *Sestertia*, 807 *l.* 5 *s.* 10 *d.* He owned that he was ashamed to use them, they were so fine. And that he had several silver Vessels, bought *per* Pound *Roman* at 6000 *HS.* 48 *l.* 8 *s.* 9 *d.*

[t] There was paid for two glass Cups, the same Sum.

Reckoning according to the Standard of our Coin, and the *English* Pound, the mere Workmanship of the Plate mention'd in the last Article, comes *per* Pound to 48 *l.* 19 *s.* 1 *d.*

The *Romans* were very costly in their *Murrhina* and *Trullæ* (their drinking Cups) [u] one that held 3 ½ Pints, cost 80 *Sestertia*, 645 *l.* 16 *s.* 8 *d.*

[x] A Lady not very rich, paid for one 150000 *Nummi*, 1210 *l.* 18 *s.* 9 *d.*

Manuscript Books are another sort of Manufacture, of which there must have been most undoubtedly some stated prices, for such as were commonly current. The Prices which I find mentioned by the Ancients are for such as were Manuscripts in our Sense, that is, not published, and valuable for the rarity of them. [a] *Pliny* saith that his Uncle told him he could have sold his Commentaries,

[q] Plin. lib. 35. cap. 12. [r] Plin. lib. 35. cap. 12. Octavio Equiti Romano Cratera facere volenti, Exemplar a Gypso factum talento. [f] Plin. lib. 33. 11. Delphines HS. quinis millibus in libras emptos C. Gracchus habuit. L. vero Crassus Orator duos scyphos Mentoris Artificis manu cælatos sestertiis centum. Confessus tamen est nunquam se iis uti propter verecundiam ausum. Eundem sex millibus sestertium in libras vasa empta habuisse. [t] Plin. lib. 36. sex millibus HS. duo vitrei calices. [u] Plin. lib. 37. cap. 2. LXXX sestertiis Calix murrhinus ad tres sextarios capax. [x] Plin. ibid. HS. CLM. Trullam unam emit mater familias non Dives. [a] Plin. Epist. ad Marcum. Referebat ipse cum procuraret in Hispania, vendere hos commentarios potuisse CCCC millibus nummum. (In eadem Epistola CLX) mihi reliquit opistographos quidem & minutissime scriptos.

mentaries, being 160 in number, to *Largius Licinus* for 400000 *Nummi*, 3229 *l.* 3 *s.* 4 *d.* He tells you in the same Epistle, that they were wrote on both sides, and in a small hand.

This is a greater Sum than [b] *Aristotle* paid for a few books of *Leusippus* the Philosopher, *viz.* 3 *Attick* Talents, which *Gellius* saith make 72000 *Nummi* of *Roman* Money; both ways of reckoning according to the Tables, bring it to 581 *l.* 5 *s.* which is a proof of the right analogy and correctness of the Tables.

[c] *Diogenes Laertius*, in the life of *Plato*, saith that a few Books of *Philolaus* were purchased for 100 *Minæ*, which *Gellius* interprets 10000 *Denarii*, both ways of reckoning bring it to 322 *l.* 18 *s.* 4 *d.*

[d] The prices of the magical Books mention'd to be burnt in the Acts of the *Apostles*, is 5 *Myriads* of Pieces of Silver, or *Drachms*, that is 1614 *l.* 11 *s.* 8 *d.*

It is a proper occasion here to mention the rewards of Arts and Sciences. [e] The customary Salary which Princes gave to their Physicians was 250 *Sestertia*, 2018 *l.* 4 *s.* 7 *d.*

[f] *Stertinius* complained that he had only a Salary of 500 *Sestertia*, 4036 *l.* 9 *s.* 2 *d.* when he had by his private practice 600 *Sestertia*, 4843 *l.* 15 *s.*

This he made out by reckoning the Houses that paid him; which shews that the Physicians had yearly pensions from private Families.

[g] One *Vectius Valens*, who seems to have been little better than a Student in Physick and Astrology, but familiar with *Messalina*, left *Centies HS.* 80729 *l.* 3 *s.* 4 *d.* for publick Buildings in his own Country; having spent as much more in the same manner.

[b] Gellius lib. 3. Aristotelem quoque traditum est libros paucos Leusippi Philosophi post mortem ejus emisse talentis Atticis tribus. Ea summa fit nummi nostri duo & septuaginta millia. [c] Diog. Laert. in vita Platonis. [d] Apost. Act. [illegible] Anglicè *Fifty Thousand pieces of Silver.* [e] Plin. lib. 29. cap. 1. Multo præterea Medicos celeberrimosque ex iis Cassios, Calpitanos, Aruntios, Albatios, Rubrios; CCL. HS Annua mercede iis fuere apud Principes. [f] Plin. ibid. Stertinius imputavit Principibus quod HS. quingenis annuis contentus esset: sexcena enim sibi quæstu urbis fuisse, numerati omnibus ostendebat. [g] Plin. ibid. Centies HS. reliquit muris patriæ, mœnibus quoque aliis, non minori summa exstructis.

[h] A Brother of *Stertinius*, after having ſpent a great Eſtate on publick Works, left (as *Budæus* has reſtored *Pliny*) *Seſtertium tricenties*, 242187*l.* 10*s.*

[i] We have an inſtance of the Fees of one country Gentleman to a Phyſician, amounting to above 1600*l.*

[k] The rewards of Orators, conſidered as ſuch, were greater among the *Greeks* than the *Romans*. *Iſocrates* was paid by *Nicocles* King of *Cyprus* for one Oration, 20 *Talents*, 3875*l.* But ſome are of opinion that here ſhould be underſtood the ſmall Talents mentioned by *Plautus*. *Gorgias Leontinus* muſt have been well paid for his Oratory, or elſe he would not have been able to reward himſelf ſo munificently as he did, by ſetting up his own Statue of Gold in the Temple of *Delphos*, the firſt of that kind.

The *Roman* Orators had more conſiderable cauſes to plead than the *Grecian*, *viz.* the cauſes of great Monarchs and States, and conſequently their Clients were more able to pay them. But in thoſe times they were not to be conſidered as pleading Advocates; when they came to be ſuch, their [l] Fees were fixt at 100 *Aurei* in one cauſe, being at that time worth 80*l.* 14*s.* 7*d.*

[m] The ſame ſeems to have been the fixt Fee in *Clodius*'s Time.

[n] The Sum that was paid for *Cicero*'s Head, may juſtly come into the account of Eloquence, being ten times more than that of any other proſcribed Perſon, *viz.* 25 *Myriads* of *Drachms*, 8072*l.* 18*s.* 4*d.*

[o] *Veſpaſian*, who was a penurious Prince, gave yearly Penſions to *Greek* and *Latin* Orators, 100 *Seſtertia*, 807*l.* 5*s.* 10*d.* [p] which was double of that given to decayed Senators, being only 403*l.* 12*s.* 11*d.* A Generoſity much exceeded in our own Nation.

We have in another place taken notice of *Virgil*'s Eſtate, amounting to 80729*l.* 3*s.* 4*d.* [q] He was rewarded for the 21 Lines

[h] Plin. ibid. Seſtertium trecenties. [i] Plin. ibid. [k] Plutarchus in vitis Rhetorum. [l] Ulpianus de honorario advocatorum. Licita autem quantitas intelligitur pro ſingulis cauſis uſque ad centum aureos. [m] Tacit. lib. 11. De tempore Claudii. Statuit modum uſque ad dena ſeſtertia. [n] Appianus lib. 4. Civ. Bell. τέλη ϗ εἴκοσι μυριάδα Ἀττικῶν δραχμῶν. [o] Tacit. in Veſpaſiano, Annua centena. [p] Sueton. in Nerone. Tacit. in eodem. [q] Servius Gram.

Lines that are extant on *Marcellus* in his 6th *Æneid*, ten *Sestertia* a Line, that is 80*l.* 14*s.* 7*d.* The whole Sum amounted to 1695*l.* 6*s.* 3*d.*

One might say something here of the value of Offices in *Rome*, but it would be an inquiry inconsistent with the brevity I propose in the present Essay. [r] I shall only observe that the ancient frugal appointments for Governours of Provinces was 20 Pound of Silver, two Horses, two Mules, two Robes, a Suit of wearing Cloaths, of bathing Cloaths one Suit, 100 *Aurei*, a Cook, and some other things mentioned in the quotation. All which could not amount to a very great Sum: and besides they were obliged to restore the Mules, the Horses, the Muletier, and the Cook; and allowed to keep the rest only if they behaved themselves well.

Things were much changed when [s] *Piso*, as *Cicero* alledgeth, having by the interest of *Clodius* obtained *Macedonia*, had allowed him only for Plate and other Vessels *centies & octogies Sestertium*, 145312*l.* 10*s.*

[t] *Pompey*, when his Governments were continued to him for four Years, had a yearly Salary allowed him of 1000 *Talents*, 193750*l.*

[u] *Claudius* payed for admittance into a Priesthood, not the high Priesthood, 64583*l.* 6*s.* 8*d.*

[r] Cicero quinta contra Verr. Lampr. in Alexandro. Ita ut præsides provinciarum acciperent argenti pondo vicena, Mulos & Equos binos, vestes forenses binas, domesticas singulas, balneares singulas, aureos centenos, coquos singulos, & si uxores non haberent, singulas concubinas, quod sine iis esse non possent, reddituri deposita administratione mulos, mulas, Equos, Muliones & Coquos, cætera sibi habituri, si bene se gesserint. [s] Cicero contra Pisonem. Centies & octogies Sestertium vasarii nomine decretum sit. [t] Plutar. in Pompeio. [u] Sueton. in Claudio. sestertium octogies pro Sacerdotii novi introitu coactus expendere.

CHAP. XIII.

Of Plate and Jewels.

IN early times of the Empire, the Laws did not allow any considerable quantity of wrought Plate. [a] A triumphal old *Roman* was censured for having five pound weight of Plate; [b] another person was banished for twelve pound. The *Carthaginian* [c] Ambassadors, by way of Jest, said that the *Romans* were the most neighbourly people in the world, for they eat in every place where they were invited out of the same plate; and they were afterwards paid home for their Joke: for [d] *Scipio Africanus* brought of theirs to *Rome* in silver Vessels to the value in *English* money of *11966 l. 15 s. 9 d.* which was all he could find in *Carthage* at that time; a quantity exceeded afterwards by the Side-boards of many private Tables.

[e] In another place the same Author saith, *L. Scipio* brought in
A. U. 565. to the value of 3934 *l.* 2 *s.* 10 *d.* and in Gold Vessels to the value of 64712 *l.* 5 *s.* 8 *d.*

[f] After all this, *Scipio Africanus* left only to his Heir 32 *Libræ Argenti*, 87 *l.* 8 *s.* 7 *d.*

[g] They were better furnished with Plate 57 Years after, as *Pliny* observes, having thrown off their wonted modesty. After King *Attalus*'s death, they began to bid high at the Auction of the Royal Goods.

[h] Before

[a] Plin. lib. 33. cap. 11. Propter quinque pondo notatum a Censoribus triumphalem cœnam. [b] Plin. ibid. Quod XII. pondo argenti habuisset. [c] Plin. ibid. Eodem enim argento apud omnes cœnitasse ipsos. [d] Plin. ibid. Idemque cum de Pœnis triumpharet, quatuor millia CCCLXXX pondo transtulit, hoc argenti tota Carthago habuit illa Terrarum æmula, quot mensarum postea apparatu victa. [e] Plin. ib. Argenti cælati pondo MCCCL vasorum aureorum pondo MD. [f] Plin. ibid. Libras XXXII argenti Africanus sequens hæredi reliquit. [g] Plin. ib. Tum enim hæc emendi Romæ in auctionibus regis verecundia exempta est.

[h] Before the *Syllan* civil War, there were at *Rome* 500 Dishes of 100 Pound weight a-piece, value of each being in *English* money, 273 *l.* 4 *s.* 3 *d.* besides the workmanship. The whole amounting to 136607 *l.* 2 *s.* 10 *d.* Those silver Vessels were sometimes the occasion of proscriptions to their owners. Likewise before *Sylla*'s victory there were but two silver *Triclinia* at *Rome*.

[i] *C. Marius* it seems was the first who drank out of a Silver Tankard, after the manner of *Bacchus*. In the latter ages of the Empire, they came to be extreamly nice in the fashion of their Plate.

[k] *Drusillanus Rotundus*, Slave of the Emperor *Claudius*, and *Commissary* in the hithermost *Spain*, is recorded for having one Vessel of 500 *Roman* Pound weight, which besides the Workmanship comes to 1366 *l.* 1 *s.* 5 *d.* And his eight Companions of 50 Pound a-piece, worth 1092 *l.* 17 *s.* 1 *d.*

There are Cisterns in *England* of more Weight than the greatest of these.

All these things were but moderate, and only extravagant in respect of the times in which they were done. [l] For afterwards they had not only their Kitchen Vessels, but Coaches and Carriages of Silver. [m] *Heliogabalus* had them of Gold and precious Stones. [n] *Julius Cæsar* lay in a gold Bed with a purple Covering. [o] They had Tables of Gold and precious Stones. I have mentioned before their extravagance in drinking Cups.

Petronius broke one worth above 3415 *l.* on purpose to disappoint *Nero*.

[p] They had Candlesticks worth the Salary of a *Tribunus Militum*, which was 50 *Sestertia*, or 403 *l.* 12 *s.* 11 *d.*

They

[h] Plin. ib. Lances e centenis libris argenti tunc supra quingentas numero Romæ fuisse constat multosque ob eas proscriptos, dolo concupiscentium. [i] Plin. ib. C. Marius post victoriam Cimbricam cantharis potare Liberi patris exemplo traditur. [k] Plin. ibid. C. Claudii principatu servus ejus Drusillanus nomine Rotundus, Dispensator Hispaniæ citerioris, quingenarem lancem habuit, cui fabricandæ officina prius exædificata. Comites ejus octo quinquaginta librarum. [l] Plin. lib. 33. cap. 3. [m] Lampridius in Heliogabalo. [n] Sueton. in Julio. In aureo lecto veste purpureâ decubuisse. [o] Ulpian. in libro cum aurum. In Coronis mensarum gemmæ coronis cedunt hæ mensis. Martial. lib. 3. Epi. 31. [p] Plin. lib. 34. cap. 3.

They had golden Shoes to their Horſes and Mules, [q] particularly *Poppæa, Nero*'s Wife; who to preſerve the fine Poliſh of her Skin, uſed conſtantly a Bath of Aſs's milk. ‡ They had golden Cloſeſtools. [r] And yet there is a Story of a Prince *Ptolomy* that lived in *Pompey*'s time, who out-did all this magnificence. He treated 1000 Gueſts with a 1000 Gold Cups, and changed them as often as the Diſhes.

The *Romans* were no leſs expenſive in Jewels than in Plate. It has been commonly thought that Diamonds, tho' firſt in value and eſteem, were not uſed in Ornaments; [ſ] altho' there is a plain paſſage in *Martial* to the contrary. The way of cutting of Diamonds even contrary to the grain is amongſt us a modern invention, but to cut them with the grain was known before. So far it is true that they were not ſo much uſed as Pearls, in which the *Romans* were exceeding prodigal. They wore them all poſſible ways, [t] and ſo many that they called them *Crotalia,* from the noiſe and crackling of them. In ſhort they were adorned with them from Top to Toe, their Stockings, their Shoes, and travelling Bed-Rooms, *&c.*

We have already mentioned *Lollia Paulina,* who by her Uncle's rapacity in his Government, was enabled to wear in her common dreſs Jewels to the value of 322916 *l.* 13 *s.* 4 *d.*

[u] *Julius Cæſar* preſented *Servilia, Brutus*'s Mother, with a Pearl worth 48437 *l.* 10 *s.*

[x] *Cleopatra* reproaching *Antony* for the meanneſs of his Suppers, at which he being ſurprized, ſhe laid a Wager ſhe would give him one

[q] Plin. lib. 33. cap. 11. Poppæa conjunx Neronis principis delicatioribus jumentis ſuis ſoleas ex auro quoque induere.

‡ Ventris onus miſero non te pudet accipis auro. Mart.

[r] Plin. ibid.

[ſ] Sardonychas, Smaragdos, Adamantas, alſpidas, uno verſat in articulo—— Mart. lib. 5. Ep. 11.

[t] Plin. lib. 9. cap. 35. Crotalia appellant, ceu ſono quoque gaudeant, & colliſu ipſo Margaritarum.

[u] Suet. in Cæſare. Ante alias dilexit M. Bruti matrem Serviliam, cui & proximo ſuo conſulatu, ſexagies Seſtertio margaritam mercatus eſt.

[x] Plin. lib. 9. cap. 35. Duo fuere maximi uniones per omne ævum: utrumque poſſedit Cleopatra, Ægypti Reginarum noviſſima, per manus Orientis Regum ſibi traditos. Hæc, cum exquiſitis quotidie Antonius ſaginaretur epulis, ſuperbo ſimul ac procaci faſtu, ut regina meretrix, lautitiam ejus omnem apparatumque obtrectans, quærente eo quid adſtrui magnificentiæ poſſet, reſpondit, una ſe cœna centies H-S. abſumpturam. Cupiebat diſcere

one Supper worth 80729 *l.* 3 *s.* 4 *d.* And after the firſt courſe, in which there was nothing extraordinary, ſhe took one of her Pearls out of her Ears, diſſolved it in Vinegar, and drank to him: ſhe was preparing ſuch another for him to pledge her, but was ſtopt by *L. Plancus*, who own'd ſhe had won her wager. It would ſeem by this Story that both the Pearls were only worth *Centies H-S.* the Sum abovementioned, which would make them of leſs value than *Julius Cæſar*'s Pearl; if indeed one of them were worth the Sum abovementioned, then *Cleopatra*'s Pearl was the more valuable. 'What this Lady did, was highly gallant, but the manner of uſing the remaining Pearl was directly barbarous, for they divided it in two, and made a pair of Earings of it for the *Venus* in the *Pantheon*.'

Pearls increaſed in value as they increaſed in weight, and excelled in fine Colour. [y] *Pliny* ſaith that a few had exceeded a *Roman* half Ounce, by one Scruple, that is in *Engliſh* weight ½ of an Ounce and 3 ½ Grains.

Budæus ſaith he had ſeen one that weighed ½ of a *French* Ounce. Precious Stones at *Rome*, as to their value, ſtood in the following order. [z] Firſt, the Diamond, whereof *Pliny* mentions one of the bigneſs of a Walnut, next the Pearl, then the Emerald, after them came at a great diſtance the Opall, * of which *Nonius* had a ring worth 161 *l.* 9 *s.* 2 *d.* the only thing he reſerved of all his Fortune when he was proſcribed. There are ſome Sizes of Emeralds which

diſcere Antonius, ſed fieri poſſe non arbitrabatur. Ergo ſponſionibus factis, poſtero die quo judicium agebatur, magnificam alias cœnam, ne dies periret, ſed quotidianam Antonio appoſuit, irridenti, computationemque expoſtulanti. At illa Corollarium id eſſe, & conſumpturam eam cœnam taxationem confirmans, ſolamque ſe centies H-S. cœnaturam, inferri menſam ſecundam juſſit. Ex præcepto miniſtri unum tantum vas ante eam poſuere aceti, cujus aſperitas viſque in tabem margaritas reſolvit. Gerebat auribus cum maxime ſingulare illud, & vere unicum naturæ opus. Itaque expectante Antonio quidnam eſſet actura, detractum alterum merſit, ac liquefactum abſorbuit. Injecit alteri manum L. Plancus, judex ſponſionis ejus, eum quoque paranti ſimili modo abſumere, victumque Antonium pronunciavit, omine raro. Comitatur fama unionis ejus parem, capta illa tantæ quæſtionis victrice Regina diſſectum, ut eſſet in utriſque Veneris auribus Romæ in Pantheo dimidia eorum cœna. [y] Plin. lib. 9. cap. 35. Pondus ad hoc ævi ſemiunciæ pauci ſingulis ſcrupulis exceſſere. Plin. lib. 37. cap. 4. Maximum in rebus humanis pretium habet Adamas, proximum apud nos Indicis, Arabiciſque Margaritis pretium eſt, c. 5. tertia autoritas ſmaragdis perhibetur. cap. 6. Minimum iidemque plurimum ab iis differunt Opali. * Plin. 37. cap. 7. Ex fortunis ſuis omnibus, annulum abſtulit ſecum quem certum eſt ſeſtertiis viginti millibus æſtimatum.

which the Author himſelf thinks incredible, particularly that mentioned by [a] *Theophraſtus*, ſent by the King of *Babylon* to the King of *Egypt*, of four Cubits length, and three in breadth. [b] The Obeliſk in the Temple of *Jupiter* 40 Cubits high, made of four Emeralds; which could not be genuine.

[c] For the Toy that was brought to *Rome* in the third Triumph of *Pompey*, the publick Records are quoted: It was a ſort of a pair of Tables for gaming, made of two precious Stones, 3 foot broad, and 4 foot long, which with other things there deſcribed would have made a fine Raffle. I likewiſe leave to the faith of the Reader the dimenſions of thoſe Carbuncles, [d] which the *Indians* will ſcoop ſo as to hold above a Pint.

[e] *Pliny* himſelf ſaw a Jaſper of eleven Ounces, which was cut into *Nero*'s Figure. [f] *Cicero* mentions a Cup made of a hollow Gemm with a golden Handle.

[g] There was a particular *Cenſus* for the wearing gold Rings, *viz.* he muſt be a Gentleman deſcended of a Father or Grandfather worth 3229*l.* 3*s.* 4*d.*

[h] They made veſſels of Gemms to hold their Ice for their Wine.

[a] Cap. 5. Theophraſtus tradit in Ægyptiorum commentariis repetiri, regi eorum a rege Babyloniorum miſſum ſmaragdum quatuor cubitorum longitudine, trium latitudine. [b] Plin. ibid. [c] Plin. ibid. cap. 2. Tranſtulit alveum cum teſſeris Luſorium e gemmis duobus latum pedes tres, longum pedes quatuor.

[d] Cap. 7. [e] Plin. ibid. [f] Cicero 6. Verrina. [g] Plin. lib. 33. cap. 2. Ne cui jus id eſſet, niſi cui ingenuo ipſi patri avoque paterno ſeſtertio CCCC. cenſus fuiſſet. [h] Pacat. in Panegyr. Parum ſe laudatos putabant, niſi æſtivam in gemmis capácibus glaciem falerna fregiſſent.

CHAP.

CHAP. XIV.

Of Gaming and Funeral Expences.

ANother piece of Expences is Gaming. The *Romans* are censured by the Poets for that vice. [a] *Augustus* himself was very fond of it, and continued so even in his old age. There is a passage of an Epistle of his to *Tiberius*, recorded by *Suetonius*, [b] which I have set down in the quotations: the substance of it, as far as it relates to our present purpose, is, that he played at a game of Chance two Days successively, and lost 20000 *Nummi*, which is 161 *l.* 9 *s.* 2 *d.* that if he had not been too generous in giving away Sums, and forgiving Debts, he had been a gainer of 50000 *Nummi*, or 403 *l.* 12 *l.* 11 *d.* Now the Game was so contrived that one particular cast took up the whole Stake, when some others came up you laid down. *Augustus* and his Play-fellows at this Play only staked *Denarii*, or 7¾ *d.* and at such low stakes you see one might come off a gainer of 403 *l.* 12 *s.* 11 *d.* It is suppos'd, [b] that this was the Play at which *Nero* staked instead of *Denarii*, 3229 *l.* 3 *s.* 4 *d.* upon every cast. Where did he find Play-fellows?

[a] Sueton. in Augusto. Inter cœnam lusimus γεροντικῶς & heri & hodie. Talis enim jactatis, ut quisque canem, aut senionem miserat, in singulos talos singulos denarios in medium conferebat: quos tollebat universos qui venerem jecerat. Et rursus aliis literis, Nos, mi Tiberi, Quinquatriis satis jucunde egimus. Lusimus enim per omnes dies, forumque aleatorium calefecimus. Frater tuus magnis clamoribus rem gessit. Ad summum tamen perdidit non multum: sed ex magnis detrimentis, præter spem paullatim retractus est. Ego perdidi viginti millia nummûm, meo nomine: sed cum effuse in lusu liberalis fuissem, ut soleo plerumque. Nam si quas manus remisi cuique, exegissem, aut retinuissem quod cuique donavi, vicissem vel quinquaginta millia. Scribit ad filiam; Misi tibi denarios ducentos quinquaginta, quos singulis convivis dederam, si vellent inter se inter cœnam vel talis, vel par impar ludere. Augustus *must have been a lover of Game, when he sent* 8 *l.* 1 *s.* 5½ *d. to his Guests to play at even and odd.*

[b] Sueton. in Nerone. Quadringenis in punctum H-S. aleam lusit.

So much of the Expences of the Living: the Expences of the Dead were ſtill more extravagant.

[c] *Memmius Agrippa* was buried by a Contribution of about half farthings a-piece among the People, I think there were 100000 contributers, and the whole Summ exactly calculated comes to 53 *l.* 16 *s.* 4½ *d.* which is a pretty great Sum, and ſhews a diſpoſition to Extravagance in thoſe times, as to Funeral Expences.

[d] On *Sylla*'s Funeral Pile were caſt 210 *feretra*, or biers of Spices, which conſidering the dearneſs of that Commodity at *Rome*, muſt have amounted to a vaſt Sum: beſides his own, and his *Lictor*'s Statue, made of Incenſe and Cinnamon, as big as the Life.

[e] *Nero* in *Poppæa*'s Funeral burnt more *Cinnamon* and *Caſſia*, than the whole yearly Product of *Arabia*.

It were endleſs to relate the immenſe Funeral Piles, the coſtly Garments, Gold, Silver and Gemms that were conſumed on theſe occaſions, the expenſive Feaſts to the people, the funeral Plays or Diverſions, particularly thoſe of the Gladiators, their ſtately Sepulchres; a hundred pair of Gladiators were very frequent.

[f] *Julius Cæſar*, in his Father's Funeral, had all the *Apparatus* of the *Arena* of Silver.

[g] One *Curio* at the Funeral of his Father built a temporary Theatre, in imitation of that of *M. Scaurus* before deſcribed. It conſiſted of two parts balanced and turning on hinges, according to the poſition of the Sun for the conveniency of Forenoon's and Afternoon's diverſion. It was a moſt extravagant thing.

[h] The Expences of *Nero*'s Funeral were not great, being only 1614 *l.* 11 *s.* 8 *d.*

[i] *Q. Minutius Anteros*, a *libertus*, left by will a yearly revenue of 80 *l.* 14 *s.* 7 *d.* to celebrate his Memory.

CHAP.

[c] Val. Max. de Memmio Agrippa. Niſi a populo collatis in capita ſextantibus, ita pecuniæ inops deceſſit, ut ſepulturæ honore caruiſſet. [d] Plut. in Sylla. [e] Nero in funere Poppææ plus cinnamomi & caſſiæ combuſſit, quam toto anno Arabia univerſa ferret. [f] Plin. lib. 33. cap. 3. [g] Plin. lib. 36. cap. 15. [h] Suetonius in Nerone. funeratus eſt impenſo ducentorum millium. [i] Vetus inſcriptio. Decem millia ſeſtertiûm quotannis.

CHAP. XV.

Of Soldier's Pay.

THERE are a great many Disputes amongst the Learned about the Rate of pay of *Roman* Soldiers. I take that matter to have stood thus. In the early times of the Commonwealth, a Horseman receiv'd yearly *Tria millia Æris*, and a foot Soldier one *Mille*, that is, reckoning according to the common value of the *As*, somewhat more than 6 pence a-day to a Horseman, and 2 pence to a foot Soldier. This Pay was afterwards increas'd to *Quini*, or five *Asses* to a foot Soldier. *Polybius* calls it δύο ὀβολοὺς, which exceeds five *Asses* by a *Triens*, or a third part of an *As*. But he is to be understood as speaking in a round number. This, considering the Diminution of the Brass Coin, was really less in value, or weight; but more in tale. *Julius Cæsar* doubled this pay of 5 *Asses*, and made it ten, which was called a *Denarius*. Afterwards *Domitian* (according to *Suetonius*, in *Domitiano Cap.* 7.) *addidit & quartùm Stipendium Militi Aureos Ternos*, that is, *Domitian* added three *Aurei* as a fourth reckoning or pay to the Soldiers. About the interpretation of which passage there are great Disputes among the Criticks. In order to come at the true sense of it, *Gronovius* has compar'd it with another passage to the same purpose in *Zonaras*, which runs thus, τοῖς στρατιώταις ἐπηύξησε τὴν μισθοφορὰν, τάχα διὰ τὴν νίκην· πέντε γὰρ καὶ ἑβδομήκοντα δραχμὰς ἑκάστου λαμβάνοντος, ἑκατὸν ἐκέλευσε δίδοσθαι. The sense of which passage is, that he order'd for the Soldiers 100 *Denarii*, instead of 75, which they receiv'd before. The most plain account of the whole matter then is, that the Soldiers receiving 10 *Asses* a-day, made 300 *Asses* in a Month of 30 Days;

 consequently

consequently in 4 Months, 1200 *Asses*: about the time of the diminution of the Brass Coin, when perhaps the Soldier's pay was likewise chang'd, as *Pliny* tells us (in a passage formerly quoted) the *Denarius* was exchang'd for 16 *Asses*; and it's probable that they were continued to be reckon'd to the Soldiers on that foot, consequently 1200 *Asses*, or four Month's pay, made 75 *Drachmæ* or *Denarii*: And the *Aureus* exchanging for 25 *Denarii*, four Months pay came exactly to 3 *Aurei* at one payment. *Domitian* increasing this 75 *Denarii* to 100, added one *Aureus* more to each payment, or 3 *Aurei* in a Year, which was properly speaking *quartum stipendium*; the Soldiers instead of 9 *Aurei* receiving now 12. Therefore tho' the daily Pay of a *Denarius* according to the analogy of the Tables ought to be reckon'd at 7 ¾ *d.* a-day; it was really, according to the above-stated account, under the value of 5 pence before *Domitian*, and about 6 pence after this additional pay.

The *Cohortes Prætoriæ & Urbanæ*, which one may translate *Guards*, had double Pay, or 2 *Denarii* a-day assigned them by *Augustus*. Those Troops who were commonly the most vitious, and not most valiant, by their Post had greater Influence on the Affairs of the Government, and even in disposing of the very Empire it self, than the other Troops, and therefore were more consider'd, not only in the Pay, but the Donatives.

If we take the price of Day-labour from the pay of Soldiers, it will not make it at a much higher rate in *Rome* than in our own Countrey. I cannot tell by what chance, but the most honourable Profession of a Foot Soldier has always been reckon'd as one of the lowest kinds of Day labour, and it has cost Mankind less to kill their own *Species*, than any other sort of *Animal*.

C H A P. XVI.

Of the Donatives given to the Soldiers.

[a] THE reward for the third *ſpolia opima*, was 100 *Aſſes*, or 6 *s.* 5 ½ *d.* for the ſecond 200 *Aſſes*, or 12 *s.* 11 *d.* and the Reward for the firſt *Spolia opima* was 300 *Aſſes*, or 19 *s.* 4 ½ *d.* *Spolia opima* were Spoils taken from the commanding Officer of the Enemy. Theſe ſmall Rewards ſhew the ſcarcity of Money in the early days of *Rome*: for I think this Reward was ordered by *Numa Pompilius.*

[b] *Lucius Lentulus* gave to each of his Soldiers, out of the Booty, 120 *Aſſes*, 7 *s.* 9 *d.*

[c] *Cornelius* gave to each Foot Soldier, 70 *Aſſes*, 4 *s.* 6 ¼ *d.* double to that of the *Equites*, 9 *s.* 1 *d.* and triple to the *Centurions*, 13 *s.* 7 ½ *d.*

[d] Eight hundred *Aſſes* were given to each Foot Soldier, or 2 *l.* 11 *s.* 8 *d.* and to the *Equites* and *Centurions* triple that Sum, 7 *l.* 15 *s.*

[e] Two hundred and fifty *Aſſes* were given to each Foot Soldier, 16 *s.* 1 ¾ *d.* double to the Centurions, 1 *l.* 12 *s.* 3 ½ *d.* and triple to the *Equites*, 2 *l.* 8 *s.* 5 ¼ *d.*

[e] Two hundred and ſeventy *Aſſes* were given to each Foot Soldier, 17 *s.* 5 ¼ *d.* and triple to the *Equites*, 2 *l.* 12 *s.* 3 ¾ *d.*

[e] Four hundred thouſand *Æris* were diſtributed among the Soldiers, 1291 *l.* 13 *s.* 4 *d.*

[f] *Pub. Cornelius* gave to each of his Soldiers, 125 *Aſſes*, 8 *s.* 0 ⅞ *d.*

† Forty two *Denarii* were given to each Soldier, that is, 1 *l.* 7 *s.* 1 ½ *d.* and double that to the *Centurions*, 2 *l.* 14 *s.* 3 *d.*

[g] *Scipio*

[a] Plutarch. in Marcello. [b] Liv. lib. 1. Dec. 4. [c] Liv. lib. 3. Decad. 4. [d] Liv. ibid. [e] Liv. lib. 4. Dec. 4. [f] Liv. lib. 6. Dec. 4. † Liv. lib. 6. Dec. 4.

[f] *Scipio Africanus* gave to each of his Soldiers 40 *Asses*, 2 *s.* 7 *d.*

[g] The *Legati* received each of them 5000 *Æris*, 16 *l.* 2*s.* 11*d.* and their *Comites*, 1000 *Æris*, 3 *l.* 4 *s.* 7 *d.*

[h] *Paulus Æmilius* gave in a Donative to his Soldiers 12 *Drachms per* man, that is 7 *s.* 1 ¼ *d.*

[i] *Lucullus* gave to each of his Soldiers 950 *Drachms*, 30 *l.* 13 *s.* 6 ½ *d.* After the taking of *Tygranocertæ*, he gave to each 800 *Drachms*, 25 *l.* 16 *s.* 8 *d.* out of the Spoil taken from *Tigranes*'s Army, and besides left the Town to be plundered by them, all except King *Tigranes*'s Treasure, where among other riches he found in ready money 8000 Talents, 1.550000 *l.*

A. U. 693. [ii] *Pompey*, after he had overcome the Pyrates, *Asia*, *Pontus*, &c. in his Triumph gave to the Publick and the Quæstors, who had defended the Shore a thousand *Talents*, or 193750 *l.* and unto each Soldier 6000 *HS.* 48 *l.* 8 *s.* 9 *d.*

By this time the Riches of the *Romans* began to encrease, and the Spoils of the conquer'd Countries could afford greater Sums to the Soldiers.

Julius Cæsar's *Donatives* were very great. [k] At one time to each Soldier of the *Veteran* Legions he gave 16 *l.* 2 *s.* 11 *d.* and to the *Equites*, 193 *l.* 15 *s.*

[l] *Dio* mentions another Donative of his amounting *per* man to 80 *l.* 14 *s.* 7 *d.*

[m] *Appianus* makes another Donative of his amount *per* man to 5000 *Attick Drachms*, or 161 *l.* 9 *s.* 2 *d.* Double to the Leader of a Company, or 322 *l.* 18 *s.* 4 *d.* To the *Tribuni Militum* and the *Equites* double of this last Sum, 645 *l.* 16 *s.* 8 *d.*

Plutarch

[g] Liv. lib. 10. Decad. 3. [h] Plut. in Paulo Æmilio. [i] Plut. in Lucullo. [ii] Plin. lib. 37. cap. 2. Reipublicæ & Quæstoribus, qui oram maris defendissent datum mille talentum, militibus singulis sena millia sestertium. [k] Suet. in Cæsare. cap. 38. Veteranis legionibus prædæ nomine in pedites singulos super bina sestertia, quæ initio civilis tumultus numeraverat, in equites vicena quaterna millia nummum dedit. [l] Dio. lib. 46. [m] Appian. lib 2. Bellor. Civil.

Plutarch takes notice of another Donative to *Cæsar*'s Soldiers for a Sacrifice, *per* man, 3 *s.* 2 ¼ *d.*

[n] *Brutus* gave *per* man 1 *l.* 12 *s.* 1 ½ *d.*

I read little of *Antony*'s Donatives, [o] but only that he promised to each Soldier that would throw Papers into *Cæsar*'s Camp, 48 *l.* 8 *s.* 9 *d.* [p] He gave once to each Soldier of the Legions 1 *l.* 2 *s.* 7 ½ *d.*

[q] *Augustus Cæsar* gave to each Soldier of the *Pretorian* Bands, after he had served 16 Years, 161 *l.* 9 *s.* 2 *d.* [r] He left to each Soldier of the *Urbanæ Cohortes*, 4 *l.* 0 *s.* 8 ¼ *d.* To the *Prætorian* Soldiers, 8 *l.* 1 *s.* 5 ½ *d.*

The *Roman* Soldiers had sometimes a great Booty, but it was most commonly regularly distributed to them; particularly at the taking *Alexandria*, they had *per* man 8 *l.* 1 *s.* 5 ½ *d.* to save the Town.

[s] *Caligula* gave to each Soldier 2 *l.* 8 *s.* 5 ¼ *d.*

[t] *Suetonius* saith he gave them 100 *Denarii*, 3 *l.* 4 *s.* 7 *d.* as a Sum exceeding all that had been given before, and bid them go away and be merry and rich, whereas it's plain his Donative fell much short of the Sums above-mentioned.

[x] *Claudius* gave to each Soldier at once the same Sum as *Caligula*, *viz.* 2 *l.* 8 *s.* 5 ¼ *d.*

[y] *Claudius* promised when he was made Emperor, 121 *l.* 1 *s.* 10 ½ *d.* being the first of the *Cæsars*, as *Suetonius* observes, that ran a-tick with the Soldiers.

[z] *Nero* promised the Soldiers 113 *l.* 0 *s.* 5 *d.*

[a] *Nero* gave to each of the *Manipulares* 2000 *H-S.* that is 16 *l.* 2 *s.* 11 *d.*

[b] He laid out on Donatives at several times 17.760416 *l.* 16 *s.* 4 *d.*

Galba

[n] Plut. in Bruto. [o] Dio lib. 51. [p] Dio lib. 49. [q] Dio lib. 55. [r] Suet. in Aug. cap. 101. Legavit Pop. Romano quadringenties, tricies quinquies H-S. Prætorianis militibus singula millia nummorum, Cohortibus urbanis quingenos, Legionariis trecentos nummos, quam summam repræsentare jussit, nam & confiscatum semper repositumque habuerat. [s] Dio lib. 59. [t] in Caligula. cap. 46. Pronunciatoque militi donativo centenis viritim denariis, quasi omne exemplum liberalitatis supergressus, abite, inquit, læti, abite locupletes. [x] Dio lib. 60. [y] Suet. in Claudio. cap. 10. Armatos pro concione jurare in nomen suum passus est, promisitque singulis quina dena H-S. primus Cæsarum fidem militis etiam præmio pignoratus est. [z] Philip. Chronic. lib. [a] Tacit. lib. 15. [b] Tacit. lib. 17.

Galba was very close-handed; I have not read much of his Liberalities. But [c] *Otho* used to bribe his Guards at a very high rate; for as often as *Galba* supped with him, he used to give every Soldier upon duty an *Aureus*, 16 *s.* 1 ½ *d.* *Plutarch* and *Suetonius* call it one *Aureus*. *Tacitus* calls it 100 *Sestertii*. The Emperor's Guard consisted of a thousand Men, so that the whole Sum came at every Supper to 807 *l.* 5 *s.* 10 *d.*

[d] *Otho* gave in the Beginning of his Reign a Donative of 40 *l.* 7 *s.* 3 ½ *d.*

[e] There is one Donative of *Vitellius* mentioned, of 16 *s.* 1 ½ *d.*

[f] There was likewise a Donative of the Emperor *Marcus Antoninus* of 96 *l.* 17 *s.* 6 *d.*

[f] And the Emperor *Lucius* his Collegue gave 161 *l.* 9 *s.* 2 *d.*

[f] *Pertinax* promised 96 *l.* 17 *s.* 6 *d.*

[f] *Pertinax* himself affirms that he gave to the Soldiers 6750 *Myriads* of *Drachms*, that is 2.179687 *l.* 10 *s.*

[g] *Julian* promised to each Soldier, when he stood for the Empire, 201 *l.* 16 *s.* 5 ½ *d.*

Even the Deputy Kings of the *Romans* gave their Donatives to their Soldiers. [h] *Herod* at his Death left each of them 1 *l.* 12 *s.* 1 ½ *d.* [i] He had given in his Life-time at once 4 *l.* 16 *s.* 4 ½ *d.*

These are some Instances not only of the *Roman* Riches and Magnificence, but of the Respect which they knew was due to a standing Army, who had the Disposal both of them and their Empire.

[c] Suet. in Othone. Quoties cœna Principem acciperet, aureos excubanti cohorti viritim dividebat. Idem habetur apud Tacit. lib. 17.
[d] Plutarch. in Othone.
[e] Dio in Vitellio.
[f] Dio. in Pertinace.
[g] Dio. in Juliano.
[h] Joseph. lib. 17. cap. 9.
[i] Ibid. lib. 14. cap. 12.

CHAP.

CHAP. XVII.

Of the Congiaria *of the Emperors, or Gifts to the People.*

THE *Roman* Emperors were the only Monarchs that gave back their superfluous Money to the People, which no doubt was good Policy, because the Money was of more use when it circulated amongst the People than lying in a dead Treasure; especially since they could command it back again, when they had occasion for it. It was still a greater Advantage to the People, because it was not their own, but Money raised on other conquered Nations. A short Account of some of these *Congiaria* is as follows.

[a] By *Julius Cæsar*, besides ten *Modii* of Corn and ten Pound of Oyl, was given to each Citizen 400 *Nummi*, or 3 *l.* 4 *s.* 7 *d.*

[b] By the same, 75 *Drachms*, 2 *l.* 8 *s.* 5 ¼ *d.*

Tho' I believe it is the same with the former Donative, only omitting the 100 *Nummi* that was mentioned in the former quotation by *Suetonius*. The same Sum is mentioned by *Plutarch*, and called 75 *Drachms*. [c] He bequeathed to the People *per* Man 75 *Drachms*, 2 *l.* 8 *s.* 5 ¼ *d.* or as some say, only 25 *Drachms*, 16 *s.* 1 ¾ *d.*

[d] *Augustus* gave frequent *Congiaria* to the People, sometimes of 30 *Nummi*, or 4 *s.* 10 ½ *d.* sometimes 40 *Nummi*, or 6 *s.* 5 ½ *d.*

a Suet. in Cæsar. cap. 38. Populo præter frumenti denos modios ac totidem olei libras, trecenos quoque nummos, quos pollicitus olim erat, viritim divisit, & hoc amplius centenos pro mora. b Dio. lib. 44. c Ibid. d Suet. in Aug. cap. 41.

ſometimes 250, 2 *l.* 2 *s.* 1 *d.* not omitting the very Children, tho' the common Cuſtom was not to give to any under the Age of eleven. *Euſebius* in his Chronicle writes, that after the Victory of *Actium*, there were reckoned of *Roman* Citizens 4.160000. And by the *Cenſus* that was made at the Nativity of our Saviour there were reckoned 93.700000. Suppoſe only that there were two Millions of theſe that received the forementioned Sum of 2 *l.* 2 *s.* 1 *d.* it would amount to 4.036458 *l.* 6 *s.* 8 *d.*

[e] *Auguſtus* left by his Teſtament to the common People, *per* Man, 2*l.* 8 *s.* 5 ¼ *d.*

[f] The ſame Author mentions another *Congiarium* of his of 60 *Drachms*, or 1 *l.* 18 *s.* 9 *d.* and the Number that did partake of this Liberality was only 200000, ſo that the whole amounted to 387500 *l.*

[g] *Suetonius* ſaith that he left to the People of *Rome* 322916 *l.* 13 *s.* 4 *d.* and to the Tribes 28255 *l.* 4 *s.* 2 *d.*

[h] *Tiberius* gave a *Congiarium* of 300 *Nummi*, 2 *l.* 8 *s.* 5 ¼ *d.*

[i] *Tiberius* was noted for his niggardly Temper, he uſed only to give to his Attendants their Dyet, but once he was taken with a Fit of Generoſity, and divided them into three Claſſes according to their Dignity; to the firſt he gave 600 *Seſtertia*, 4843 *l.* 15 *s.* to the ſecond 400 *Seſtertia*, 3229 *l.* 3 *s.* 4 *d.* to the third 200 *Seſtertia*, 1614 *l.* 11 *s.* 8 *d.*

In ſuch a *Suit* as a *Roman* Emperor had, this would exhauſt a large Civil-Liſt. [k] There is another Liberality of his mentioned, very judicious and generous; to the Citizens who had ſuffered Damage by a great Fire he gave *Millies H-S.* 807291 *l.* 13 *s.* 4 *d.*

[l] *Caligula* gave a *Congiarium* of 60 *Drachms*, 1 *l.* 18 *s.* 9 *d.*

He

e Dio. lib. 56. f Ibid. lib. 55. g In Auguſto cap. 41. Legavit pop. Romano quadringenties, tribubus tricies quinquies. H-S. h Suet. in Tiberio, cap. 20. i Ibid. cap. 46. Pecuniæ parcus ac tenax, comites peregrinationum expeditionumque nunquam Salario, cibariis tantum ſuſtentavit: una modo liberalitate ex indulgentia vitrici proſecutus cum tribus claſſibus factis pro dignitate cujuſque, primæ ſexcenta ſeſtertia, ſecundæ quadringenta diſtribuit, ducenta tertiæ, quam non amicorum ſed gratorum appellabat. k Suet. ibid. Dio. lib. 58. l Dio. lib. 59.

He paid likewiſe a Legacy of *Tiberius* of 1125 *Myriads* of *Drachms*, 363281 *l.* 5 *s.*

[m] *Nero* gave a *Congiarium* of 400 *Nummi*, 3 *l.* 4 *s.* 7 *d.*

[n] The ſame is mentioned by *Tacitus.*

[o] *Nerva* gave at once in land to the value of 484375 *l.* to relieve poor Citizens.

[p] *Adrian* ſaid he had loſt 3.229166 *l.* 13 *s.* 4 *d.* which he had given to the People and Soldiery for the Adoption of *Commodus*, who proved unfit for the Empire. This ſhews you to what immenſe Sums the *Ambitus* or bribing for Offices had come to.

[q] *Antoninus Philoſophus* gave a very large *Congiarium* of no leſs than 8 *Aurei*, 6 *l.* 9 *s.* 2 *d.* which *Dio* ſaith was greater than ever they got before.

[r] His Son *Commodus* gave 725 *Denarii*, 23 *l.* 8 *s.* 2 ½ *d.*

[s] *Severus* gave a *Congiarium* of 10 *Aurei*, which came to 5000 *Myriads* of *Drachms*, 1614583 *l.* 6 *s.* 8 *d.*

[t] The *Ambitus* or bribing for Offices was very expenſive. *Milo* when he ſtood for the Conſulate gave to each Voter 32 *l.* 8 *s.* 10 *d.*

[u] *Sabinus Nymphidius* promiſed to each Soldier of the provincial Legions 40 *l.* 7 *s.* 3 ½ *d.* that they might chuſe *Galba* Emperor.

[x] *Claudius* promiſed the Soldiers *per* Man 113 *l.* 0 *s.* 5 *d.* if they would make him Emperor.

[y] *Julian* promiſed to the Soldiers *per* Man 201 *l.* 16 *s.* 5 ½ *d.* to chuſe him Emperor.

[z] *Otho* promiſed 403 *l.* 12 *s.* 11 *d.* to thoſe that were to aſſaſſinate *Galba*, of which there was paid in ready Money 80 *l.* 14 *s.* 7 *d.*

However this was no extraordinary Price for the Life of an Emperor, nor is it an extraordinary Sum that is mention'd by

Saluſt,

[m] Suet. in Nerone cap. 10. [n] Tacit. lib. 13. [o] Dio. in Nerva. [p] Spartian. in Adriano. [q] Dio. in Antonio. [r] Lampridius in Commodo. [s] Dio. in Severo. [t] Aſconius Pædianus. [u] Plutarch. in Galba. [x] Philippus lib. 3. Chronici. [y] Dio. [z] Suet. in Othone.

Saluſt, [a] given to two Spies in *Catiline's* Conſpiracy, *viz.* to one 807 *l.* 5 *s.* 10 *d.* to another a Freeman 1614 *l.* 11 *s.* 8 *d.*

[b] *Otho* bribed one of *Galba's* Servants with 8072 *l.* 18 *s.* 4 *d.*

Paulus the *Conſul* was bribed by *Cæſar* himſelf with a Sum of 565101 *l.* 8 *s.* 4 *d.*

[c] *Plutarch,* who mentions this, ſaith afterwards, that he was brought over to *Cæſar's* Party by the Sum of 290625 *l.*

There are two conſiderable Bribes mention'd in Law-Suits, [d] one of 8072 *l.* 18 *s.* 4 *d.* which *Dio* was obliged to pay for common Juſtice. [e] Another of 5166 *l.* 13 *s.* 4 *d.*

[f] *Gabinius* was accuſed of taking a round Sum of 1.937500 *l.*

The [g] *Ambitus* came at laſt to 80729 *l* 3 *s.* 4 *d. per* Tribe, and there were 35 of them.

Capito Coſſulianus according to *Tacitus lib.* 12. for bringing in *Thraſeas Pætus* guilty, got a Reward of *quinquagies H-S.* 40208 *l.* 6 *s.* 8 *d.*

CHAP. XVIII.

Of the Revenues of the Roman *Empire.*

IT is much to be regretted that there is not in any Author a Computation left us of the Revenues of the *Roman* Empire, and hardly any Memoirs from whence it might be collected. Thoſe of the Moderns who have wrote upon the Subject, have rather made a Collection of ſome Paſſages of Authors obſcure, and ſometimes inconſiſtent, than given any methodical Account, from whence they may be reduced to Numbers. All that was poſſible for me to do in this Uncertainty, was to gather ſome matters

[a] Saluſt. [b] Suet. in Othone. [c] Plut. in Cæſare. [d] Cicero in 3. Verrina. [e] Cicero in Cluentio. [f] Cicero pro Rabirio Poſthumo. Epiſt. 2. ad Q. Fratrem. [g] Cic.

matters of Fact together, which I shall lay before my Readers, leaving those of more Skill to make their Inferences from them. *Augustus* carried a *Rationarium* of the Empire in his Pocket. It was certainly a very great Curiosity, and a Loss never to be retriev'd.

In considering the Riches of the *Roman* Government, one must in the first place look upon them originally as Proprietors of all the Land in their Dominions, which being acquir'd by Conquest, was dispos'd by them according to their Pleasure. We read of the *Vectigales Agri*, which were Lands taken from the Enemy divided into Centuries or Hundreds, and distributed amongst the Soldiers, new Colonies, Cities, or left in the Hands of the original Proprietors, under the Condition of paying such Duties, which as long as they paid, they entitled them and their Heirs to the perpetual Possession. It appears by a Passage in *Pliny Epist.* 7. that this Revenue was commonly reckon'd *ad Rationem usuræ trientis*, or four *per Cent.* This is somewhat obscurely exprest: if it is meant of the Value of the Purchase, it was very high; it being hardly possible to make so much of Land, unless it was reckon'd at a very low Price. These Lands were sometimes called *Quæstorii*, from their being put to Sale by *Quæstors* or Commissioners for that purpose. Sometimes those Lands were out upon Leases of *Lustra* or four Years, after the Expiration of which Term the Tenants were obliged to renew. There were Lands called *Assignati*, which were entirely divided among the *Veterans* with the Obligation only of certain Services, and the Proprietors might dispose of them on the same Condition. The Reader may see long but not very clear Accounts of these Matters in *Hyginus de Limitibus*.

The *Roman* Taxes, in the more early times of their Empire, consisted chiefly in *Vectigalia* and *Tributa*. The *Vectigalia* were of three sorts, from Tillage, Pasturage, and Carriage of Goods.

[a] The Tax upon Tillage may be reckoned at two Shillings in the Pound in arable Ground, and four Shillings in Plantations. This

[a] Appian. lib. 1. Civil. *Δεκάτῃ μὲν τῶν σπειρομένων, πέμπτῃ δὲ τῶν φυτευομένων.*

This Tax was often levied in kind upon Corn, and called *Decumæ* or Tithes. *Cicero* ſpeaks frequently of theſe *Decumæ* in *Sicily*, in his Orations againſt *Verres*. The Tax upon Paſturage was raiſed according to a certain Rate, *per* head, upon Cattle. It was called *Scriptura*. There is a Paſſage in the *Theodoſian* Code which ſtates this at four *Siliquæ* the head, or 5 ; *d.*

[b] The *Portorium* or Tax upon Carriage was what we call the Cuſtoms upon Trade and Shipping; it was exacted in Harbours, Rivers, and ſometimes in the Paſſage of Bridges, at different Rates in different times, Goods and Countries. It ſometimes amounted to the fortieth or fiftieth Part, and in ſome Caſes very near half the value of the whole Goods.

Tributum, properly ſpeaking, was a Tax upon Individuals; one ſort of it was called *Capitatio*, a Pole-tax. Beſides the forementi-on'd Taxes, there were ſeveral Exciſes, as that formerly mention'd laid on by *Cato* upon Luxury and Expences; which perhaps was only temporary. There was a Salt Tax laid on very early. [c] *Ancus Martius* made the firſt Magazines of Salt. *Salarium* or Salary is derived from *Sal.*

The *Cenſus* was a Valuation of the Eſtates of Particulars, for a Rule of Taxing to the Government as Occaſion ſerv'd; and is improperly confounded with the *Capitatio*.

Afterwards there was ſuch a Multitude of Exciſes laid on by the Emperors, that there was hardly any thing eſcap'd; as the *Vectigal Macelli*, a Tax upon Meat: [d] which was once taken away as a Grievance, but impoſed again in *Caligula's* time. A Tax upon Metals, and by the *Pappian* Law the tenth of Inheritances of ſuch as died without Heirs. *Vectigal Lupanarium & Matrimonii*, a Tax upon Stews and Marriages. [e] Five *per Cent.* upon manumitted Slaves. [f] Four *per Cent.* on Slaves that were ſold. [g] One *per Cent.* upon Auctions. The *Tributum Artificium*, a Tax upon Tradeſmen. *Vectigal fluminum.* [h] *Ædilium Tributum* upon Plays. [i] A Tax upon

[b] Velleius Paterculus.
[c] Liv. lib. 31.
[d] Suet. in Calig.
[e] Liv. lib. 7.
[f] Dio. lib. 55.
[g] Suet. in Auguſto.
[h] Cic. lib. 2. Epiſt. ad Attic.
[i] Boadicia apud Xiphilinum.

upon the dead. A Tax upon Urine and Dung called *Chrysargyron*: from which perhaps the Expression of Gold-finders may come. Besides these and several others too numerous to mention, there were voluntary Oblations of the *Senators*: and to sum up all, at last they tax'd [k] *Fumum, Aerem & Umbram*, Smoak, Air, and Shade.

Another Fund of Riches of the *Roman* Government was the Treasure that they plunder'd from their Conquests, in *Specie*, Jewels, Plate, *&c.* some Particulars of which remain upon Record, and are as follows.

[l] *Paulus Æmilius*, after he had overcome *Perseus* King of *Macedonia*, brought into the Treasury *H-S.* $\overline{\text{MM}}.\overline{\text{CCC}}$. 1.856770 *l.* 16 *s.* 8 *d.*

[m] *Scipio* having conquered *Antiochus*, brought to it *Bis Millies*, 1.614583 *l.* 16 *s.* 8 *d.*

[n] Before the third *Punick* War, when *Sextus Julius* and *Lucius Aurelius* were *Consuls*, there was in the Treasury, of Gold 16810 *Pondo*, which reckon'd in the decuple Proportion is 455971 *l.* 5 *s.* Of Silver 22070 *Pondo*, 59864 *l.* 17 *s.* 6 *d.* And of coin'd Money *Sexagies Bis*, and 85400 *H-S.* 50741 *l.* 10 *s.* 2 ½ *d.* which in all comes to 566577 *l.* 12 *s.* 8 ½ *d.*

[o] When *Sextus Julius* and *L. Marcius* were Consuls, there was in the Treasury 1.920829 *Pondo* of Gold, 52.102486 *l.* 12 *s.* 6 *d.*

This is according to *Harduin*'s Explication of *Pliny*'s Numbers, but the Sum seems too extravagant, and perhaps the Numbers are not correct.

[p] *Cæsar* brought at once to the Treasury 65000 Talents, 12.593750 *l.*

[q] And

k Zonaras. l Plin. lib. 33. cap. 3. Intulit Paulus Æmilius, Perseo victo, è Macedonica præda H-S. $\overline{\text{MM}}.\overline{\text{CCC}}$. m Idem. lib. 38. n Idem lib. 33. cap. 3. Auri in Ærario populi Romani fuere, Sex. Julio, L. Aurelio Coss. Septem annis ante bellum Punicum tertium pondo XVI. DCCCX. argenti XXII. LXX. & in numerato LXII. LXXXV. CCCC. o Idem ibidem. Item Sex. Julio, L. Marcio consulibus, hoc est belli socialis initio auri $\overline{\text{XVI}}$. XX. DCCCXXIX. p Plutarch. in Cæsare.

[q] And when he first enter'd *Rome* in the beginning of the Civil War, he took out of the Treasury 25000 *Pondo* of Gold, 678125 *l.* 35000 *Pondo* of Silver, 94937 *l.* 10 *s.* and in Coin *H-S.* $\overline{\text{CCCC}}$. 322916 *l.* 13 *s.* 4 *d.* which three Sums amount to 1.095979 *l.* 3 *s.* 4 *d.*

[r] *Tiberius* left in the Treasury *vicies septies millies,* 21.796875 *l.*

Some other Conjectures, concerning the Value of the Revenues of the Empire, may be made from such Memoirs as are left us of the Revenues of particular Provinces. *Appian,* who was cotemporary with *Adrian,* in the Preface of his History, thus describes the Bounds of the *Roman* Empire: In *Africa, Hercules's* Pillars and the Eastern *Æthiopians*; in *Asia,* the River *Euphrates,* Mount *Caucasus,* the beginning of the greater *Armenia,* and the *Colchi* inhabiting about the *Euxine* Sea; in *Europe,* the *Rhine,* and the *Ister* or *Danube,* comprehending all the Islands belonging to these Countries.

To begin with *Ægypt*: *Appian,* speaking of its Forces, saith that in the Reign of the second King after *Alexander,* there was in the *Ægyptian* Treasury 74 *Myriads* of Talents, or 191.166666 *l.* 13 *s.* 4 *d.*

[s] *Strabo* quotes *Cicero,* mentioning the Revenue of *Ægypt* to have been (in the time of *Auletes,* Father to *Cleopatra*) 12500 Talents, 2.421875 *l.*

He adds, that if *Auletes,* who was a very negligent Prince in the Administration of Affairs, made so much, what must now the *Romans* make, who govern it so wisely; especially since the *Indian* and *Troglodytick* Trade had greatly augmented the Revenues?

Agrippa

[q] Plin. lib. 33. cap. 3. C. Cæsar primo introitu urbis in civili bello suo, ex ærario protulit laterum aureorum XXV.M. argenteorum XXXV. & in numerato, H-S. $\overline{\text{CCCC}}$.

[r] Suetonius in Caligula.

[s] Τῆς Αἰγύπτου δὲ τὰς προσόδους ἐν τινὶ λόγῳ Κικέρων φράζει, φήσας, κατ' ἐνιαυτὸν τῷ τῆς Κλεοπάτρας πατρὶ τῷ Αὐλητῇ προσφέρεσθαι φόρον ταλάντων μυρίων καὶ δισχιλίων πεντακοσίων. Ὅπου οὖν ὁ κάκιστα καὶ ῥαθυμότατα τὴν βασιλείαν διοικῶν τοσαῦτα προσωδεύετο, τί χρὴ νομίσαι τὰ νῦν διὰ τοσαύτης ἐπιμελείας οἰκονομούμενα, καὶ τῶν Ἰνδικῶν ἐμποριῶν, καὶ τῶν Τρωγλοδυτικῶν ἐπηυξημένων ἐπὶ τοσοῦτον.

[t] *Agrippa*, in his Oration to the *Jews*, recorded by *Josephus*, tells them that the *Roman* Empire had seventy five Millions of Inhabitants paying Taxes, besides the People of *Alexandria* (which City, as he there describes the Dimensions of it by *Stadia*, was near three *English* Miles and a half in Length, and half of that in Breadth) and, saith he, besides furnishing *Rome* yearly with four Months Provision of Corn, pays more Taxes in a Month than you do in a Year. And what *Judæa* was tax'd at, may in some measure appear from the following Particulars. [u] *Cassius*, after *Cæsar*'s Death, rais'd out of it 700 Talents, 135625 *l.* [x] And *Herod* left to *Cæsar* 1000 *Myriads*, 322916 *l.* 13 *s.* 4 *d.* and half of that to his Spouse, 161458 *l.* 6 *s.* 8 *d.*

[y] *Vespasian* imposed a *Didrachm* as a Pole-tax on that Nation, *viz.* 1 *s.* 3½ *d.* [z] And their Number being reckon'd seven Millions, that Tax will amount to fourteen Millions of *Drachms*, 452083 *l.* 6 *s.* 8 *d.*

Then if we reckon twelve times as much for the Taxes of *Alexandria*, according to *Agrippa*'s Speech, they will come out 168 Millions of *Drachms*, 5.425000 *l.* But it will be fairer to reckon it twelve times the sum of *Cassius*, *viz.* 1.627500 *l.*

It's certain the Customs of *Alexandria* were very great, it having been the Staple of the *Indian* Trade, which alone, according to * *Pliny*, carried yearly out of *Rome quingenties H-S*, 403645 *l.* 16 *s.* 8 *d.* And with some other Branches mention'd by the same Author, there was yearly carried out of *Rome*, *Centies*, or 807291 *l.* 13 *s.* 4 *d.*

[a] The *Carthaginians*, after *Hannibal*'s Overthrow, paid the *Romans* yearly only 200 Talents, 38750 *l.*

The Revenues of *Asia* in the time of *Darius* were not very great; for, according to *Herodotus*, all the Revenues in Money which *Darius* drew from *Asia*, *Egypt* and the *Indies* amounted only to 7740 *Babylonian* Silver Talents, 1.749562 *l.* 10 *s.* and 360 of

Gold,

[t] Josephus lib. 2. de Bell. Judaico
[u] Idem lib. 14.
[x] Idem ibid.
[y] Idem lib. 7.
* Lib. 6. cap. 23. Digna res nullo anno Imperii nostri minus H-S. quingenties exhauriente India, & merces remittente quæ centuplicato veneunt.
[a] Livius lib. 30.

Gold, which *Herodotus* reckons thirteen times the Value of so many Silver Talents, or 1.057175 *l.* in all making 2.807437 *l.* 10 *s.*

[b] *Cicero* reckons *Asia* for its Fruitfulness, and the great Quantities of Commodities for Exportation, far above all other Countries. *Appian* saith that *Sylla* ordered *Asia* to pay four Years Tribute, which *Plutarch* tells us was 20000 Talents, 3.875000 *l.*

And therefore in *Sylla*'s time the yearly Tribute of *Asia* was 5000 Talents, 968750 *l.*

Plutarch likewise relates that before *Pompey*'s time, the Tribute of *Asia* was only 5000 *Myriads* of *Drachms*, 1.614583 *l.* 6 *s.* 8 *d.* but that by his Conquests it was augmented to 8500 *Myriads*, 2.744791 *l.* 13 *s.* 4 *d.* yet *Plutarch* saith that *Antony* made *Asia* pay at once 20 *Myriads* of Talents, 38.750000 *l.*

But *Appian* writes that this Sum was the Tribute of ten Years; so that in *Antony*'s time the yearly Tribute of *Asia* was 2 *Myriads* of Talents, 3.875000 *l.*

As to *Gaul*, [c] *Cæsar* exacted from it yearly *quadringenties*, 322916 *l.* 13 *s.* 4 *d.*

Lipsius is of opinion that *quatermillies* should be read for *quadringenties*, which would make the Sum ten times bigger, *viz.* 3.229166 *l.* 13 *s.* 4 *d.*

But it is not probable that *Gaul* would be able to pay such a Sum yearly, immediately after long Wars. However *Velleius Paterculus* affirms that *Gaul* was reckoned on the same Footing with *Ægypt* as to Taxes.

There are no Passages in old Authors, whereby the Tribute of *Spain* can be found; no doubt it was very great, on the account of the Mines. *Strabo* tells that the Mines at *Carthagena* yielded the *Romans per diem* to the Value of 25000 *Drachms*, 807 *l.* 5 *s.* 10 *d.* which *per annum* makes, 294661 *l.* 9 *s.* 2 *d.*

[d] *Hannibal*

[b] Cicero pro Imp. Cn. Pom. Nam cæterarum provinciarum Vectigalia Quirites, tanta sunt ut his ad ipsas provincias tutandas vix contenti esse possumus. Asia vero tam opima & fertilis, ut & ubertate agrorum & varietate fructuum, & magnitude pastionis, & multitudine eorum quæ exportantur, facile omnibus terris antecellat.

[c] Eutropius, lib. 6.

[d] *Hannibal* got *per diem* out of the *Spanish* Mines 300 *Pondo* of Silver, 968 *l.* 15 *s.* which in the Year comes to 353563 *l.* 15 *s.*

[e] *Asturias, Gallicia* and *Lusitania* paid yearly 20000 *Pondo* of Gold, or 645833 *l.* 6 *s.* 8 *d.*

[f] There was a Mine in *Dalmatia* which yielded *per diem* 50 *Pondo* of Gold, 1614 *l.* 11 *s.* 8 *d.* which in the Year comes to 589322 *l.* 18 *s.* 4 *d.*

The *Macedonians* paid yearly 2000 Talents, or 387500 *l.* as appears from 2 *Macch.* viii.

[g] *Strabo* tells you that *Britain* bore heavy Taxes, especially the Customs on the Importation and Exportation of the *Gallick* Trade.

The greatness of the *Roman* Revenues does likewise appear from the vast Sums spent by the Emperors on *Donatives* and *Congiaria*, which are mention'd before.

It appears that *Nero* spent that way 17.760416 *l.*

What *Vitellius* spent I have mention'd before. *Dio* makes the Sum amount to 18.532296 *l.* 13 *s.* 4 *d.*

[h] *Caligula* spent within the Year 21.796875. *l.*

[i] *Vespasian*, at his Accession to the Empire, said, that to support the Commonwealth there was need of no less than *Quadringenties Millies*, 322.916666 *l.* 13 *s.* 4 *d.* which is a Sum so great, that it seems impossible to be raised in many Years out of the Taxes of the whole Empire.

[k] The *Roman* Empire under *Augustus* maintain'd forty four Legions. Let us suppose these Legions full, consisting of 10 *Cohortes*, whereof the first was *Millenaria*, a 1000 Men; the rest of 500 a-piece. According to this Computation the Legions will make 242000 Men, besides the *Pretorian* Bands and some Cavalry.

The Establishment of *England* in the Year 1711 was above

 201000

d Plin. lib. 33. cap. 6. e Plin. lib. 33. cap. 3. f Idem ibid. g Lib. 4. h Tacitus lib. 17. i Suetonius in Vespasiano cap. 16. Quadringenties millies (scilicet H-S.) Vespasianus statim initio sui principatus opus esse professus est, ut republica stare posset. k Orosius lib. 6.

201000 Men; and that of *France* was much greater than this *Augustus*.

But one may ſay that this Force was too great for either Kingdom to exert, and could not be done without incurring an immenſe Debt.

CHAP. XIX.

Some Obſervations upon the Grecian *Money Affairs.*

THO' I have not leiſure to make ſo long and particular a Diſſertation upon the Riches and Money of *Greece* as I have done on thoſe of *Rome*, yet to gratifie the Curioſity of the Reader, I have collected a few Matters of Fact, that will enable him to make ſome Judgment in what relation the Wealth of *Greece* ſtood to that of *Rome*.

The firſt *Cenſus* of the *Athenians*, as it was inſtituted by *Solon*, was after the following manner,

Thoſe of the firſt Claſs were called *Pentacoſiomedimni*, or, as the word imports, ſuch as could afford 500 *Medimni* or Meaſures of dry or liquid things; I ſuppoſe as of Corn, Wine and Oyl. A *Medimnus* contains 4 *Pec.* 1 *Gal.* 1 *Pin.* 053 *S. In.* conſequently 500 *Medimni* of Corn for Example make about 71 *Qua.* 2 *Buſh.* 1 ½ *Peck*.

Thoſe of the ſecond Claſs were termed *Zeugitæ*, from Yokes of Oxen and Horſes.

Thoſe of the third were called *Hippæi* or Horſemen.

Thoſe of the fourth were called *Thetes*, or ſuch as dealt in Workmanſhip and Manufactures, theſe were excluded from any Share in the Magiſtracy.

The

The first Clafs was fuppofed to be able to make the Expences of a Talent, or 193 *l.* 15 *s.*

The *Hippæi* were fuppofed to be able to fpend half a Talent, or 96 *l.* 17 *s.* 6 *d.*

The *Zeugitæ* were fuppofed to be able to fpend 32 *l.* 5 *s.* 10 *d.*

The fourth Clafs were fuppofed not to be worth any thing, or incapable of making any publick Expences.

The Reader may fee a full Account of this *Cenfus* in the Authors mark'd at the Bottom of the Page*, the Paffages are too long to tranfcribe.

[a] Corn was reckoned commonly at a *Drachma* the *Medimnus*, or 7 ¾ *d.* *per* Quarter 4 *s.* 6 *d*

[b] In *Demofthenes*'s time it was much higher, at 5 *Drachms* the *Medimnus*, which makes it *per* Quarter 1 *l.* 2 *s.* 7 ¾ *d.*

[c] There were indeed two of the greateft Dearths at *Athens* that ever were known in any Country. One in which the Price of Wheat came to 300 *Drachms* the *Modius*, *per* Quarter 305 *l.* 13 *s.* 9 *d.*

[d] The other was when *Athens* was befieged by *Sylla*, when Corn was *per* Quarter 226 *l.* 8 *s.* 8 ½ *d.*

In times of Plenty the [e] Price of a Sheep was 7 ¾ *d.*

[f] The Price of a Hog 1 *s.* 11 ¼ *d.*

[g] The Price of an Ox 3 *s.* 2 ¾ *d.*

Thefe Prices, which feem much upon a *par* with the early Rates of Cattle at *Rome*, muft have been when Money was not in fo great Plenty, for they keep no Ballance with the Price of Corn above mentioned; nor [h] with the Price of a Horfe which was 12 *Minæ*, or 38 *l.* 15 *s.* But Horfes came out of the Eaft-country, and were at firft fcarce in *Greece.*

[i] A Soldier's daily Pay was a *Drachma*, as a *Denarius* at *Rome*, 7 ¾ *d.*

There

* Ariftot. 2. Politicon. Plut. in Solone. Pollux lib. 8. [a] Plut. in Solone. [b] Demofthenes contra Phormionem. Philippus lib. 2 Chronic. [c] Plut. in Demetrio. [d] Idem in Sylla. [e] Plutarch. in Solone. [f] Ariftophanes in Pace. [g] Plutarch. in Solone. [h] Ariftophanes in Nebulis. [i] Demofth. Olynth. 1.

There were ſome Soldiers called *Didrachmæ*, from having double that Sum, 1 *s.* 3 ½ *d.* *viz.* the ſecond *Drachma* for a Servant.

[k] There is likewiſe mention'd by *Xenophon* a *Tetrobolon*, a Soldier's Pay, 5 ⅛ *d.*

[l] The Pay of a Horſeman *per* Month, beſides his Proviſions was no more than 30 *Drachms*, (that is a *Drachm* a day) 19 *s.* 4 ½ *d.*

The *Greeks*, eſpecially the *Athenians*, were great Encouragers of Arts. [m] The yearly Pay of a common School-maſter was a *Mina* or 3 *l.* 4 *s.* 7 *d.*

[n] The ſame was the Reward of a Teacher of *Dialecticks*.

[o] The Reward of a *Sophiſt* was 4 or 5 *Minæ*, 12 *l.* 18 *s.* 4 *d.* or 16 *l.* 2 *s.* 11 *d.*

[p] *Gorgias* the Orator had from his Scholars 1000 *Minæ*, or 322 *l.* 18 *s.* 4 *d.*

According to *Suidas* the Reward of the *Sophiſts* was a Talent, 193 *l.* 15 *s.*

[q] The yearly Penſion paid *Democedes* the Phyſician by the *Athenians* was 100 *Minæ*, or 322 *l.* 18 *s.* 4 *d.*

[q] The *Æginetæ* paid him yearly the Penſion of a Talent, or 193 *l.* 15 *s.*

[q] He had a Penſion from *Polycrates Samius* of two Talents, 387 *l.* 10 *s.*

[r] *Iſocrates* had from his Diſciples a *Didactron*, or Reward of 1000 *Minæ*, 3229 *l.* 3 *s.* 4 *d.*

[s] *Pamphilus* a Painter had from his Apprentices a Talent a year, 193 *l.* 15 *s.* and they were bound, it ſeems, for ten Years. *Budæus* reads it, *Docuit neminem minoris talentis annuis quadraginta*, and that from the Authority of an ancient Manuſcript: But this Sum is incredible, being no leſs yearly than 7750 *l.*

[t] *Iſocrates* had a Talent for inditing the Letters which *Timotheus* ſent to *Athens*, or 193 *l.* 15 *s.*

W'en

[k] Xenoph. lib. ἑλληνικῶν. [l] Demoſthenes Philip. 1. [m] Athenæus lib. 13. [n] Cicer. lib. 4. Acad. quæſt. [o] Iſocrates contra Sophiſtas. [p] Suidas. [q] Herodot. lib. 3. [r] Plutarch. in Iſocrate. [s] Plin. lib. 35. cap. 18. [t] Plut. in Iſocrate.

[u] When *Amœbeus* the Harper sung in the Theatre at *Athens*, his Pay *per diem* was a Talent, 193 *l.* 15 *s.*

[x] *Helcyon* got from *Dionysius* a Talent, or 193 *l.* 15 *s.* because he had foretold an Eclipse of the Sun.

[y] *Demosthenes* sold the Silence of one Day for 20 Talents, or 3875 *l.* to *Harpalus*, and he was fined for it 50 Talents, 9687 *l.* 10 *s.*

[z] The Judges at *Athens* had 150 Talents, 29062 *l.* 10 *s.*

[a] The Rewards of the *Isthmian* and *Olympick* Games were but small, as they were instituted by *Solon*: The Honour of the Victory was the chief Encouragement. To the Victor in the *Isthmian* Games the Reward was only 100 *Drachmæ*, or 3 *l.* 4 *s.* 7 *d.* To the Victor in the *Olympick* Games 500 *Drachmæ*, or 16 *l.* 2 *s.* 11 *d.*

[b] 500 *Drachmæ* in those early Days was thought a competent Fortune for a Gentlewoman, and was raised by Contribution by her Friends, 16 *l.* 2 *s.* 11 *d.*

[c] The *Athenians* gave 3000 *Drachmæ*, 96 *l.* 17 *s.* 2 *d.* to the two Daughters of *Aristides*, he himself being very poor.

Eminent Painters had great Prices for their Pictures; I took notice before, that [d] *Asclepiodorus* had paid him by *Theomnestus* for every Figure of a Hero 100 *Minæ*, or 322 *l.* 18 *s.* 4 *d.*

[e] There were 100 Talents, 19375 *l.* of Tribute, remitted to the *Coi* for the *Venus* of *Apelles*.

[f] As to Books, I took notice before that a few Manuscripts of *Philolaus* were sold for 100 *Minæ*, or 322 *l.* 18 *s.* 4 *d.*

[g] *Ptolemy Philadelphus* bought of the *Athenians* the original Manuscripts (or those perhaps which were given out to be such) for 15 Talents, or 2906 *l.* 15 *s.*

[h] *Isocrates* sold one Oration to *Nicocles*, King of *Cyprus*, for 20 Talents, 3875 *l.* which was the same Price that *Demosthenes* had for holding his Tongue.

All

[u] Athenæus lib. 14. [x] Plutarch in Dione. [y] Plutarch. in Demosthene. [z] Aristoph. in Vespis. [a] Plut. in Solone. [b] Suidas in θῆτα. [c] Plutarch. in Aristide.

[d] Plin. lib. 35. cap. 10. [e] Strabo. lib. 14. [f] Diog. Laert. lib. 3. Gell. lib. 3. cap. 17. [g] Philippus in Declamat. de studiis veteris Philosophiæ. [h] Plutar. in Socrate.

[i] All these Rewards came vastly short of what was paid *Aristotle* by *Alexander* for his natural History of Animals, being no less than 800 Talents, or 155000 *l.*

The Punishments of free Governments are commonly gentle, accordingly the [k] legal Fines are commonly but small; 100 *Drachmæ,* 3 *l.* 4 *s.* 7 *d.* was the common Fine for a Rape appointed by *Solon.*

[l] The Fine of a Slanderer, or one that betrayed Secrets, was 500 *Drachmæ,* 16 *l.* 2 *s.* 11 *d.*

But great Men who mis-served their Country, were often fined very highly; as [m] *Pericles,* who was fined 50 Talents, 9687 *l.* 10 *s.*

Miltiades was fined the same Sum.

[n] And *Demades* paid ten *Myriads* of *Drachms,* or 3229 *l.* 3 *s.* 4 *d.* for a hundred Strangers who danced at *Athens* against Law.

[o] It was a pretty large Fine that was imposed by *Cassius* on *Rhodes,* no less than 500 Talents, or 96875 *l.*

[p] But nothing ever came up to the Extravagance of the Expences of the Funeral of *Hephæstion* by *Alexander,* being no less than 12000 Talents, or 2.225000 *l.*

Plutarch makes this only 10000 Talents, or 1.937500. *l.*

Indeed one must own he had plentiful Sources of Riches and Treasure for such Expences. [q] The Crowns that were sent him in Presents at his Marriage were reckoned worth 15000 Talents, or 2.906250 *l.* *Q. Curtius* affirms that at *Susæ* and *Persepolis* he got no less than 150000 Talents, or 29.062500 *l.*

[r] He found in the House of *Bagoas* wearing Apparel to the Value of 1000 Talents, or 193750 *l.*

[s] The Riches of *Damascus* only in coined Money was 503750 *l.*

The

i Athen. lib. 9 & 12. k Plut. in Solone. l Isocrates contra Lochitam. m Suidas. n Plut. in Phocione. o Plut. in Bruto. p Justin. lib. 12. Diodor. Siculus in Alexandro lib. 17. q Athenæus lib. 12. r Plut. in Alexandro. s Quint. Curt. lib. 5.

[t] The Foot-stool of *Darius* was valued at 3000 Talents, or 581250 *l.*

After such an immense Value for a Foot-stool, one must not wonder at the Price of the Scabbard of *Mithridates*'s [u] Sword, which one *Publius* having stole, sold to *Ariarathes* for 400 Talents, 77500 *l.*

His father *Philip*'s Revenues were very inconsiderable in respect of such Sums. [x] *Diodorus Siculus* reckons as a prodigious Sum the thousand Talents that were yearly paid to *Philip*, 193750 *l.*

And *Herodotus* makes the three Governments of *Asia* pay [y] yearly only 1470 Talents, 284812 *l.* 10 *s.*

As *Alexander* received great Sums, he was no less generous and liberal in disbursing of them; and it may gratify the Curiosity of the Reader to give some Account of them, that he may compare them with the Liberality of the *Roman* Emperors.

[z] At one time he gave to each of his Soldiers 96 *l.* 17 *s.* 6 *d.*

[a] He discharged 900 Soldiers by reason of their Age, and to every Foot Soldier of them he gave 96 *l.* 17 *s.* 6 *d.* and to every Horseman 397 *l.* 10 *s.*

[a] He gave a Donative to each of the foreign Horsemen in his Service of 500 *Denarii*, or 16 *l.* 2 *s.* 11 *d.*

He gave to the *Macedonian* Horse, 19 *l.* 7 *s.* 6 *d.*

[b] To the Soldiers who were to return to their own Country, he odered *per* man 32 *l.* 5 *s.* 10 *d.*

[b] And at another time he gave to each Soldier who returned home, 96 *l.* 17 *s.* 6 *d.*

[c] At one time he gave to each Horseman, 193 *l.* 15 *s.*

[d] He gave likewise 2000 Talents, 387500 *l.* as a free Gift to the *Thessalians*. [e] And after all he left in his Treasure at his Death 100000 Talents, 19.375000 *l.* No wonder, since his yearly Tribute, as the same Author hath delivered it, was 300000 Talents, 58.125000 *l.*

D d   You

[t] Athenæus lib. 12.
[x] In Philippi anno 3.
[z] Curt. lib. 7.
[u] Plut. in Pompeio.
[y] Herodot. lib. 3.
[a] Idem lib. 5.
[b] Idem ibid.
in Alexandro.
[c] Idem. lib. 6.
[e] Justin. lib. 13.
[d] Plut.

You have all those Sums as they are delivered by the Authors, whose Credit must answer for them.

The *Romans* could never be said to be rich before their Conquest of *Greece*. *Greece* was much richer than *Italy*, and *Asia* than *Greece*. The Revenues of the *Athenian* Commonwealth were vastly greater than those of *Rome*, considering the small Extent of their Dominions; for the *Athenian* Dominions were always very small, the *Romans* very early had acquired a much larger Territory, and yet were very poor. This will appear from the following Account of the *Athenian* Revenues.

[f] *Demosthenes* tells you, that the Revenue of *Athens* in early times was 130 Talents, 25187 *l.* 10 *s.*

That it had received an Addition of 400, or 77500 *l.* which makes in all 102687 *l.* 10 *s.*

[g] *Xenophon* calculates the Revenue at 1000 Talents, or 193750 *l.*

[h] According to *Aristophanes*, it was 2000 Talents, or 387500 *l.*

Thucydides brings in *Pericles* speaking of their Wealth, and reckoning the yearly Tribute of their Confederates 600 Talents, 116250 *l.*

[i] *Demetrius Phalareus*, when he was at the Head of their Affairs, had in his Power a Revenue of 1200 Talents, or 232500 *l.*

[k] *Thucydides* affirms that there were in the Castle at one time 6000 Talents, 1.162500 *l.*

[l] *Isocrates* saith that *Pericles* brought into the Castle 8000 Talents, 1.550000 *l.*

[m] *Lycurgus*, Son of *Lycophron*, brought into the Treasury more than 6500 Talents. 1.259375 *l.*

[n] They were able to undertake very great Works, and laid out on the Castle 2012 Talents, 400235 *l.*

The *Attick* Dominions upon the Continent were scarce so big as *Yorkshire*: What a Figure did this Republick make in the World with so small a Dominion!

The

[f] Philip. 4. [g] Lib. 7. Anab. [h] Aristoph. in Vespis. [i] Athenæus lib. 12. [k] Lib. 2. [l] Isocrates de pace. [m] Pausanias in Atticis. [n] Suidas in voce προπύλαια.

The *Macedonians*, who had a much larger Dominion, did not, after they were subdued, pay above 100 Talents Tribute to the *Romans*, 19375 *l.*

I shall conclude this Chapter with one Instance of the *Asiatick* Riches, the Credit of which Story I leave the Authors to answer for. It is the Value of the Treasure of *Sardanaplus*, with which he made a Funeral Pile for himself and Family, when he was besieged by *Arbaces*, King of the *Medes*. *Athenæus* makes the Value of the Treasure of this Pile to amount to 100.000000 Talents, which reckoned in *Babylonick* Talents, amounts to 16953.125000 *l.*

This was only the Value of the Silver; there was besides a tenth part of that Number of Talents of Gold, which, if Gold was reckon'd in a decuple Proportion, will just double the Sum.

CHAP. XX.

Some Examples of the Application of the Tables relating to the Money-Affairs of the Jews.

[a] WHEN *Saul* and his Servant went to consult *Samuel* about finding their lost Asses, they designed to have given him the fourth part of a Shekel, 7¼ *d.*

[b] *Jeremiah* bought *Hanameel's* Field for 17 Shekels, 2 *l.* 3 *s.* 11 *d.*

[c] *David* gave unto *Araunah* for his threshing Floor and Oxen 50 Shekels, 6 *l.* 9 *s.* 2 *d.*

[d] The same is related differently in another Place, where it is said that *David* gave unto *Ornan* for the Place 600 Shekels of Gold, 1240 *l.*

[e] *Omri*, King of *Israel*, bought the Hill *Samaria* for two Talents, 387 *l.* 10 *s.*

a 1 Sam. ix. b Jer. xxxii. c 2 Sam. xxiv. d 1 Chron. xxi. e 1 Kings xvi.

[f]The Estimation of a Male from twenty Years old to sixty is 50 Shekels, *6 l. 9 s. 2 d.* if it be a Female, the Estimation is 30 Shekels, *3 l. 17 s. 6 d.* if it be a Male from five Years old to twenty, the Estimation is twenty Shekels, *2 l. 11 s. 8 d.* and if a Female 10 Shekels, *1 l. 5 s. 10 d.* if it be a Male from a Month to five Years old, the Estimation is 5 Shekels, *12 s. 11 d.* and if a Female 3 Shekels, *7 s. 9 d.* If it be sixty Years old or upwards, the Estimation of a Male is 15 Shekels, *1 l. 18 s. 9 d.* and that of a Female 10 Shekels, *1 l. 5 s. 10 d.*

If a Man shall sanctify unto the Lord some part of a Field, the Estimation shall be according to the Seed, an Homer of Barley (1 *Quart.* 3 *Bush.*) shall be valued at 50 Shekels, *6 l. 9 s. 2 d.*

[g]The First-born was redeemed for five Shekels, *12 s. 11 d.*

[h]When the Children of *Israel* were numbered, each above twenty Years old was obliged to pay half a Shekel, *1 s. 3 ½ d.* and their Number was 603550, so that the Sum came in all to *38979 l. 5 s. 5 d.*

[i]When *Ben-hadad*, King of *Syria*, besieged *Samaria*, an Ass's Head was sold for 80 Pieces of Silver, *10 l. 6 s. 8 d.* and the fourth part of a *Cab.* (*i. e.* about a Pint) of Doves Dung for five Pieces, *12 s. 11 d.*

[k]*Micah* gave unto his Priest, besides Victuals and Cloaths, ten Shekels of Silver yearly, that is *1 l. 5 s. 10 d.*

[l]*Hosea* bought a Woman for fifteen Pieces of Silver, *1 l. 8 s. 9 d.* and an Homer and an half of Barley, which is more than two Quarters,

[m]*Joseph's* Brothers sold him for twenty Pieces of Silver, *2 l. 11 s. 8 d.*

[n]If an Ox push one, his Owner was obliged to pay thirty Shekels of Silver, *3 l. 17 s. 6 d.*

[o]If a Man committed a Rape, he was obliged to marry the Woman, and pay her Father fifty Shekels, *6 l. 9 s. 2 d.*

Abraham's

f Levit. xxvii.
h Exod. xxxviii.
k Judges xvii.
g Numb. xviii.
i 2 Kings vi.
l Hosea iii.
m Gen. xxxvii.
o Deut. xxii.
n Lev. xxi.

[r] *Abraham's* Servant made a present to *Rebeccah* of an Ear-ring of Gold weighing half a Shekel, 1 *l.* 8 *s.* and of golden Bracelets weighing ten Shekels, 20 *l.* 13 *s.* 4 *d.*

[q] The Crown of *Hanun*, King of the *Ammonites*, weighed a Talent of Gold, or 130 *lib. Troy*, and so was worth 6200 *l.*

[r] *Pharaoh-necho*, King of *Egypt*, during the Reign of *Jehoahaz*, imposed on the *Jews* a Tribute of 100 Talents of Silver, 38750 *l.* and one of Gold, 6200 *l.* which make together, 44950 *l.*

[s] *Menahem* gave to *Pul* 1000 Talents of Silver, 387500 *l.* to confirm the Kingdom in his Hands. And he raised the Money by exacting from each of the richer sort of the *Jews* fifty Shekels, 6 *l.* 9 *s.* 2 *d.*

[t] When *Sennacherib*, King of *Assyria*, invaded *Judah*, he was prevail'd on to return home for the Sum of 300 Talents of Silver, 116250 *l.* and 30 of Gold, 186000 *l.* in all 302250 *l.*

And *Hezekiah*, King of *Judah*, to raise this Sum, was obliged not only to advance all his own Treasure, but likewise to take the Plate out of the Temple.

[u] When *Anun*, King of the *Ammonites* was going to make War upon *David*, he sent 1000 Talents (387500 *l.*) into *Mesopotamia* to hire Chariots and Horsemen.

[x] *Amaziah*, King of *Judah*, hired 100000 Men for 100 Talents, 38750 *l.*

[y] After *Jotham*, King of *Judah*, overcame the *Ammonites*, he made them pay three Years successively 100 Talents, 38750 *l.* 10000 Measures of Wheat, and as many of Barley.

[z] *Haman* offered to pay 10000 Talents of Silver (3.875000 *l.*) to King *Ahasuerus* upon condition he would give Orders to destroy the *Jews*. But *Josephus* (*lib.* 2.) tells us that he offered four Myriads of Talents, which, if they be *Attick*, amount to 7.750000 *l.*

Artax-

p Gen. xxiv. q 2 Sam. x. x 2 Chron. xxv. y 2 Chron. xxvii.
r 2 Kings xxiii. s 2 Kings xv. z Esther iii.
t 2 Kings xviii. u 1 Chron. xix.

[a] *Artaxerxes*, King of *Persia*, ordered to be paid to *Ezra* the Priest whatever he should demand, as far as 100 Talents of Silver, 38750 *l.* 100 Measures of Wheat, 100 Baths of Wine, and 100 Baths of Oyl.

[b] *Ezrah* committed to the Custody of the Priests 650 Talents of Silver, 251875 *l.* 100 Talents of Silver Vessels, 38750 *l.* 100 Talents of Gold, 620000 *l.* and two Basons of Gold of 100 Drachms, 51 *l.* 13 *s.* 4 *d.* which all together amounts to 910676 *l.* 13 *s.* 4 *d.*

[c] *Darius* ordered 39 Talents, or 7556 *l.* 5 *s.* to be paid the *Jews* yearly towards the building of the Temple, and defraying the Charge of the Burnt Offering.

[d] *Simon* the High-priest sent Ambassadors to the *Romans* to renew their old Friendship, and with them a golden Shield weighing 1000 Pounds.

[e] *Antiochus* demanded of the *Jews* the Cities of *Joppe* and *Gazara*, or in the place of them 500 Talents, 96875 *l.* And for the Harm they had done, and for the Tributes of the Cities he demended 500 Talents more. But *Simon* the High-priest offered him only 100 Talents, 19375 *l.*

[f] *Jason*, to be made High-priest, offered to give *Antiochus* 360 Talents of Silver, 69750 *l.* and out of a certain Revenue 80 Talents more 15500 *l.* and 150 Talents, 22062 *l.* 10 *s.* upon condition that he should get leave to train up the Youth in the Fashions of the Heathen, and call the Inhabitants of *Jerusalem* by the Name of *Antiochians*; which three Sums amount to 114312 *l.* 10 *s.*

But *Menelaus* being sent to *Antiochus* with the Money, offered 300 Talents more, 58125 *l.* and so got the Priesthood to himself.

[g] *Simon* the High-priest sent 100 Talents, 19375 *l.* to *Tryphon*, that he might set his Brother *Jonathan* at liberty.

Heli-

a Ezra vii. b Ezra viii. c 1 Esdras iv. d 1 Macab. xv. e Ibid. f 2 Macab iv. g 1 Macab. xiii.

[h] *Heliodorus,* Treasurer of *Seleucus,* carried out of *Jerusalem* 400 Talents of Silver, 77500 *l.* and 200 of Gold, 620000 *l.* which had been laid up for the Relief of Widows and Orphans. Both Sums make 695500 *l.*

[i] When *Antiochus* conquered the *Jews,* he carried out of the Temple 1800 Talents of Silver, 348750 *l.*

[k] *Nicanor* undertook to raise 2000 Talents, 387500 *l.* by selling the Captive *Jews,* 90 for a Talent.

CHAP. XXI.

Of the Cost of the Temple, *and the Riches of* David *and* Solomon.

[a] THE Furniture of the Table of Shew-bread, the Candlestick and other Instruments were made of Gold, and weighed a Talent, 6200 *l.*

[b] There was laid out for the Altar of Burnt-offering, 29 Talents and 730 Shekels of Gold, 181308 *l.* 13 *s.* 4 *d.* 100 Talents and 1775 Shekels of Silver, 19604 *l.* 5 *s.* 5 *d.* and 70 Talents 2400 Shekels of Brass.

[c] The most holy House was overlaid with fine Gold, amounting to 600 Talents, 3.720000 *l.*

[d] *David* laid up of his own Money for building the Temple 3000 Talents of Gold, 18.600000 *l.* and 7000 of Silver, 2.712500 *l.* The Princes of the Tribes gave towards it 5000 Talents and 10000 Drachms of Gold 31.000516 *l.* 13 *s.* 4 *d.* 10000 Talents of Silver, 3.875000 *l.* 18000 Talents of Brass, 100000 Talents of Iron.

David

h 2 Macab. iii.
k 2 Macab. viii.
i 2 Macab. v.
a Exod. xxv. & xxxvii.
b Exod. xxxiii.
d 1 Chron. xxix.
c 2 Chron. iii.

[e] *David* prepared in all for the Temple 100000 Talents of Gold, 620.000000 *l.* and 1.000000 Talents of Silver, 193.750000 *l.*

[f] *Hiram* King of *Tyre* gave unto *Solomon* 120 Talents of Gold, 744000 *l.*

[g] The Queen of *Sheba* gave him the same.

[h] *Solomon's* Fleet brought from *Ophir* 420 Talents of Gold, 2.604000 *l.*

[i] *Solomon* in one year received 666 Talents of Gold, 4.029200 *l.* besides what he got from the Merchants, the Governors of the Country, and the Kings of *Arabia*.

In these Computations the Shekel is supposed quadruple of the Drachma, according to *Josephus*. And the proportion of Gold to Silver is sixteen to one. The Talents in passages of the Old Testament are stated double the *Attick*, but in passages out of the *Apocrypha* the *Attick* Talent is used.

CHAP. XXII.

Of the Interest of Money.

IT is natural to ask, if Money was in such Plenty in *Rome* and *Athens*, how came Interest to be so high?

To make a compleat Dissertation upon the Interest of Money among the Ancients, would require a Volume larger than all this Treatise. But the Reader may take the following Account of it, as far as it coincides with my Design. The most ancient word for Interest was *Fœnus*, which some derive from ποινὸς, *pretium vel pœna*; some from an obsolete Word *feo*, from whence *fœtus* and *fœcundus*. *Usura*, which was a general word, signifying the use of any thing, (*Plaut. Prolog. Amphitr. Usuram corporis ejus capit sibi,*) came afterwards to be applied to Money.

Interest

[e] 1 Chron. xxii. [f] 1 Kings ix. [g] 1 Kings x. [h] 1 Kings ix. [i] 1 Kings x.

Interest for Money was forbid amongst the *Jews*, and by an old Law in *Rome* (call'd the [a] *Lex Genuntia*) likewise amongst the *Romans*. But neither *Romans* nor *Jews* were forbid to take Interest from Strangers: but afterwards this Law came to be abolished, or grew insignificant, as most Laws will that limit the price of Money, contrary to the natural course of it. The Interest of Money, both in *Rome* and *Greece*, was high for a considerable time. Simple Interest was exacted monthly in both places at the rate of one *per Cent. per* Month. In *Greece* at the New Moon, and in *Rome* at the *Kalends*. [b] *Kalendarium exercere* signify'd the same thing with *fœnus exercere*. Therefore *Strepsiades*, in *Aristophanes*, being burden'd with Debt, dreaded ἔνην ϗ νέαν. This Usury was a *Drachma* upon the *Centum Minæ*, somewhat more than twelve *per Cent.* a year, because the Lunations returned oftener than our *Kalendar* Months. The *Romans* paid likewise a *Denarius* a Month for 100 *Denarii*: and it is mention'd by [c] *Cicero* as monthly. *Æschines* in his Oration *Ctesiphon*, saith that the *Oritani* paid him a *Drachm* a month till the principal was repaid: this was called ἑκατοστὴ or *centesima usura*, one *per Cent.* And because the *As* was reckoned any *Integer*, it was likewise called *Asses usuræ*: so that *Asses usuræ* and *centesimæ usuræ* are the same thing. The other Subdivisions of Interest according to the parts of the *As* one may see in the Tables. *Livy* and *Tacitus* mention the *fœnus unciarium* and *semiunciarium* as high, which according to the proportion of the *As*, being but $\frac{1}{12}$ or $\frac{1}{24}$ in the Month, must only make 1 or $\frac{1}{2}$ *per Cent. per annum*. And the Law of the XII Tables forbids, *ne quis unciario fœnore amplius exerceto*. So it is exprest by *Tacitus*. These Expressions cannot be interpreted according to the Analogy of the Tables, but differ from all the others, and they certainly denote the *centesima usura*: but how this way of Expression in these two Authors has happened, I can give no Account: It seems they put the *Uncia* for the *As* or *Integer*.

The *Centesima Usura* was the greatest Interest, which it was not lawful to exceed; and what was paid over it, was reckoned as a Repayment of part of the Principal. But whatever Laws were made

Ee to

[a] Plin. lib. 35. cap. 7. [b] Seneca de Beneficiis lib. 7. [c] Lib. 5. Epist. ult.

to regulate Intereſt, it was in *Rome* as in all other places, the Value of Money roſe above or fell below the legal Intereſt, according to the Scarcity or Plenty of the Commodity. So that *Semiſſes Uſuræ* or ½ *per Cent. per* month, ſix *per Cent.* a year, which *Pliny* calls *Civilis & modica*, came to be the publick and cuſtomary Intereſt of Money; for the *Aſſes Uſuræ* came to be a grievance, and occaſion'd great tumults among the people: yet ſtill he that took it was not reckoned to tranſgreſs any Law; and there were ſome greedy Uſurers that exacted double, triple, nay four times as much.

The *Seſquicenteſima*, which was 1½ *per Cent.* a month, and 18 *per Cent.* a year, was condemned by the *Nicene* Council. It was allowed by the [d] *Athenians* only in the caſe of the Repudiation of a Wife, in which caſe the Husband was obliged to pay nine *Oboli* monthly, till the repayment of her Portion; nine *Oboli* make a *Drachm* and a half.

Cicero, in his *Frumentaria*, accuſeth *Verres* for lending out the Money that was intruſted to him for buying of Grain, at 2 *per Cent.* a month; which ſhews that they muſt have been as great Extortioners as our Pawn-brokers.

There were no laws at firſt to limit the Intereſt upon [e] *Pecuniæ Trajectitia*, or *Fœnus Nauticum*, the Money that was lent to Maſters of Ships upon *Bottom Maree* or their Goods. Yet even this was reduced by *Juſtinian* the Emperor from 2 to 1 *per Cent.* a month. The reaſon of the high rate of the *Fœnus Nauticum* was the greater risk that the Creditors were ſuppos'd to run.

[f] Money came to be ſo plentiful in *Auguſtus Cæſar*'s time, that it fell from *Centeſima* to *Uſura trientaria*; and *Juſtinian* reduced Intereſt to that rate, *viz.* to 4 *per Cent.* a year. There was alſo *Quadrantes Uſuræ* or ¼ a month, or 3 *per Cent.* a year.

There was, beſides ſimple Intereſt, a ſort of compound Intereſt, which, as we obſerved before, was called by *Tully Anatociſmus:* it was ſometimes reckoned after 100 months, and ſometimes anniverſary

[d] Demoſthenes κατ' νεαίρας. [e] Capite de nautico fœnore. [f] Dio. lib. 51.

verſary. [g] *Ariſtophanes* calls it τόκοι τοκῶν. The reaſon of the Law was that the Creditor could demand his Money and Intereſt at the Term of Payment; but this came much to the ſame thing; for Debtors that were not very able to pay, ſubmitted to add the Intereſt to the Principal for the ſake of Forbearance.

There was an Intereſt allow'd among the *Romans* for what they called the *Species Crediti*, as Corn, Wine, Oil, *&c.* which was ſettled by *Conſtantine* at a third part, that is, where two *Modii* were lent, the Debtor was obliged to pay three, in caſe no other Bargain was made. The reaſon of this was the Variableneſs of the price of thoſe Commodities.

A monthly Intereſt is higher than an annual one of the ſame rate, becauſe it operates by compound intereſt. This ſuggeſts to me the following Problem.

The rate of Intereſt *per annum* being given, to find the greateſt Sum which is to be made of one Pound, ſuppoſing the Intereſt payable every indiviſible moment of time.

Let r be the Intereſt of one Pound *per annum*, and let t denote any part of time with reſpect to the whole Year: the ſimple Intereſt due for that time will be rt. Now if the Intereſt be payable at the end of every ſuch time equal to t, the whole Sum at the end of the year, reckoning compound Intereſt, will amount to $\overline{1+rt}|^{\frac{1}{t}}$. But by *Newton*'s Theorem we have

$$\overline{1+rt}|^{\frac{1}{t}} = 1+r+\frac{1-t}{2}r^2+\frac{1-3t+2tt}{6}r^3+\frac{1-6t+11t^2-6t^3}{24}r^4+ \&c.$$

And by ſuppoſition t denotes an indiviſible Moment of time, and therefore it is equal to nothing: in which caſe the former Value of $\overline{1+rt}|^{\frac{1}{t}}$ becomes

$$1+r+\tfrac{1}{2}r^2+\tfrac{1}{6}r^3+\tfrac{1}{24}r^4+\tfrac{1}{120}r^5+ \&c. \text{ or}$$
$$1+Ar+\tfrac{1}{2}Br+\tfrac{1}{3}Cr+\tfrac{1}{4}Dr+\tfrac{1}{5}Er+ \&c.$$

For

[g] In Nebulis. Tull. lib. 5. Epiſt. ad Att. Interim cum ego in edicto tralatitio centeſimis me obſervaturum haberem cum Anatociſmo anniverſario, ille ex ſyngrapha poſtulabat quaternas.

For Instance, suppose one Pound pay every Moment at the rate of 6 *per Cent. per annum*, then is $r = ,06$; which substituted in the *Series* gives the Terms as in the Margin, whose Sum is 1,06183654 equal to the Value of 1 Pound with it's Interest at the End of the Year. And as 1 is to this Number, so is any other Sum let out to Interest, to that Sum which it amounts to at the End of the Year. For if the Sum let out be 10.000000 *l.* it will be found to amount to 10.6183654 *l.* that is 10.618365 *l.* 8 *s.*

1,00000000
6000000
180000
3600
54
1,06183654

This Problem is likewise solv'd by a Table of Logarithms, as follows,

Multiply *r* into ,43429448.... *&c. viz.* the Reciprocal of the Hyperbolick *Logarithm* of 10; and the Product will be the Logarithm of the Number requir'd, which will be found by the common Tables.

High rates of Interest are an Indication of the Scarcity of Money; but this Reason will not operate so strongly in the case of the *Roman* Citizens, as it would in other Cities of *Europe* at this Day. For,

1. It is plain there was a great deal of Credit at *Rome*, where great Men could run in debt such vast Sums, as appear in the Chapter of Debts and Estates, even as far as half a Million without any other visible fund but their personal Merit, and hopes of preferment in the Commonwealth.

2. The Usurers or Money-changers being a sort of a scandalous employment at *Rome*, is another reason for the high rate of Interest. For where a Trade or Profession is exercised clandestinely, and not in a legal manner, it must be exercised with more Fraud and Extortion; and indeed those money *Scriveners* seem to have been little better than our *Pawn-brokers*.

3. The *Romans* do not seem to have known the secret of Paper Credit, and Securities upon Mortgages, as far as I know, or at least to the degree it is practised now-a-days, which makes as it were a Multiplication of the *Species* of Money.

4. The

4. The *Ambitus* was the great Trade of *Rome*, and demanded a constant Supply of great Sums of Money. **Tully* assigns this reason for the high rate of Interest, and tells us that it had brought it from 4 *per Cent.* to 8. Bribery was come to the height of 80729 *l.* *per* Tribe, at the least the Majority of them, such as had the casting Votes. And there being no less than thirty five Tribes, it is easy to guess how expensive this Corruption was grown, and every body knows where it ended at last. This hath been hinted in a former Chapter.

* Cicero Epist. 2. ad Q. Fratrem. Ambitus rediit immanis, nunquam fuit par, non dico Hyperbolas, vel Sestertium Centies constituunt in prærogativum pronunciare. —— Ardet Ambitus fœnus ex triente, Idibus Quinctilis factum erat bessibus.

A DISSERTATION

Concerning the Navigation *of the Ancients.*

THE Consideration of the Riches of the Ancients leads us naturally to that of their Trade; and there it is no less obvious to enquire into the Bulk and Tunage of their Shipping: but I imagin'd that Calculations of this kind would seem dry and incoherent without a general Discourse on the Subject to which they related. I chose therefore to compile a compendious History of the Navigation of the Ancients, having the Assistance of the learned M. *Huet's* Treaty on their Commerce. The nature of my Undertaking confined me to Brevity in this, as in the other Dissertations; and yet I believe there are very few material things omitted.

Ships were at first called *Rates* in the *Roman* Language from their Texture, *Ex ratibus vimine contextis.* The Ancients, saith [a] *Isiodorus,* join'd together pieces of Timber, and covered them with Planks, which were their first Ships. If we had not improv'd the Inventions of our Predecessors, saith [b] *Quintilian,* we should be still sailing *in Ratibus,* in Rafts or Floats. The *Monoxyla* or Boats made of one hollowed piece of Timber, were still an improvement

[a] Isiodor. 19. 1. [b] Quint. 10. 2

ment the upon *Rates*. They were used in very early times, and particularly by the *Indians* in opposing the Invasion of *Semiramis*. [c] *Xenophon* mentions them as capable of holding only three Men. [d] *Polyænus* as carrying only one; they are used in *Greece* at this Day. M. *Spon* tells us in his Book of Travels, that he was carryed in one; he adds that they were fifteen or twenty feet long, a foot and a half broad, and as much in depth; that he saw two Horses carried over in one of them. According to what is mention'd by [e] *Sidonius Apollinaris*:

---------Pars lintre cavata
Jam dociles exponit equos.

[f] *Pliny* says, that *German* Pyrates used them, some being capacious enough to carry thirty Men. They were in use among the *Gauls*, as [g] *Livy* relates; and among the *Hispani*, according to [h] *Strabo*. They were called by the *Romans* *Alvei*.

There were likewise Boats covered with Leather, us'd particularly by the *Britons*. *Carinæ primum*, saith *Cæsar*, *ac statumina ex levi materia fiunt, reliquum corpus viminibus contextum coriis integitur*. These were called by the *Greeks* Δερματινὰ Πλοῖα, particularly by *Xiphilinus*: they are used in *Wales*, and amongst the *Tartars*, at this Day.

The most brittle Water-carriage was used among the *Ægyptians*, who, as [i] *Strabo* saith, would sail sometimes in Boats made of Earthen-ware.

---------Imbelle & inutile vulgus
Parvula fictilibus solitum dare vela faselis,
Et brevibus pictæ remis incumbere testæ. Juv. Sat. 15.

The *Ægyptians* made Boats of the *Papyrus*, a Plant of which writing paper was made till the ninth or tenth Age, and from whence it still retains its Name.

Plutarch

[c] Xenoph. lib. 6. Hist. Græc. [d] Lib. 5. [f] Lib. 16. cap. 41. [g] Lib. 21. D. 26.
[e] Sidon. Apollinar. in Panegyricis. [h] Lib. 2. [i] Lib. 17.

Plutarch relates it as a common opinion, that Crocodiles would not hurt ſuch as were carry'd in thoſe Paper Boats, becauſe *Iſis* once ſail'd in one of them.

What appears ſtill more incredible, the *Indians* made Boats of hollow Canes. [k] *Heliodorus* ſaith they ſplit a Cane in two, and made a Boat of each part. [l] *Pliny* tells you they were big enough to carry three Men.

The common Materials which the Ancients made their Ships of, were the *Ornus*, or the wild *Aſh*; the *Ilex*, or ever-green *Oak*; the *Beech*; and the *Alder*. The *Fir* was likewiſe uſed for this purpoſe, *Lucan lib.* 3.

Occumbunt Orni, nodoſa impellitur Ilex,
Silvaque Dodones, & fluctibus aptior Alnus.

[m] *Pliny* tells us that in *Egypt* and *Syria* the Kings were forced to build their Ships of Cedar for want of Fir.

The *Romans* made uſe of Fir, with which their Foreſts ſupply'd them plentifully.

[n] *Ptolomy* promiſed the *Rhodians* Timber for building of ten *Quinquiremes*, and as many *Triremes*, and ſome of forty Cubits long.

They joined their Timbers with Iron. *Vegetius* ſaith that ſuch as would be at the Expence uſed Braſs, becauſe it did not ruſt. *Hiero* made uſe of that Metal in the building of his great Ship. They filled up the Interſtices of their Planks with Hemp and Pitch; and ſometimes with a ſort of *Juncus* or Ruſh called *Spartum*.

We ſhall have occaſion to diſcourſe of the Bulk of their Veſſels, and the different ſorts of them, in the following part of this ſhort Hiſtory.

It is probable that, even before the Deluge, Mankind, who had attained to great Perfection in other Arts, muſt have uſed ſome ſort of Machines, made of the Materials above mentioned, to paſs Rivers and Gulphs for the conveniency of mutual intercourſe.

After

k Heliod. 10. 27. l Plin. lib. 8. m 16. 41. n Polybius lib. 5.

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After the Deluge the condition of mankind made this commerce more neceſſary, and the Iſlands could not be peopled without Tranſport by Shipping. The *Ægyptians* and *Phœnicians* were undoubtedly the firſt People who cultivated the Art of Navigation.

The *Ægyptians* at firſt navigated the Red Sea by the permiſſion of the *Idumæans* who were Maſters of it. (It is believed the *Idumæan* King *Erythras* was the ſame with *Edom* or *Eſau*.) But the *Ægyptians* ſoon emancipated themſelves from that dependance.

[o] *Oſiris*, or, as the *Greeks* call him, *Dionyſus*, the *Bacchus* of the Ancients, is reported to have civilized the *Indians* and reigned amongſt them 52 Years, planting Colonies and building Cities, *A. M.* 2422. upon which *Seſothis* or *Seſoſtris*, King of *Egypt*, founded his pretenſions to the *Indies*, and after having conquered the *Ethiopians*, with a Navy of four hundred Ships ſent into the Red Sea, ſubdued all the maritime coaſts as far as *India* [p]; he himſelf in the mean while extending his Conqueſts, by Land, farther than *Alexander* did, beyond the *Ganges*, and as far as the Ocean. This Correſpondence between the *Egyptians* and *Indians* continued for many Years, inſomuch that when *Cambyſes* invaded *Ægypt*, the *Indies* were the Refuge of many of the *Egyptians*. The learned *M. Huet* is of opinion, that the conformity of the Cuſtoms and Manners of the two Nations is a Token of this ancient Alliance. Particularly, the *Chineſe* making uſe of *Hieroglyphicks* as the *Ægyptians* do, their holding the Doctrine of the *Metempſychoſis*, their Worſhip of a Cow, and their Averſion from receiving foreign Merchants into their Country, which, as [q] *Strabo* relates, was the Temper of the ancient *Ægyptians*.

The *Indians* were not ignorant of Navigation before the Invaſion of the *Ægyptians*; for, perhaps an hundred years before the Expedition of *Seſoſtris*, according to the imperfect Chronology of that time, they maintained a War againſt *Semiramis*, in which they had four thouſand *Monoxyla* or *Canoes* of one piece of Timber, on the River *Indus*; ſuch a People muſt have had ſome Experience of Navigation upon the Ocean.

o Diodor. Sicul. lib. 1. p Manetho apud Joſephum lib. 1. contra Apionem. q Lib. 17.

It plainly appears that the *Ægyptians* practised this Navigation very early; therefore when [a]*Strabo* tells us that *Ptolomy Philadelphus* was the first who opened the Navigation of *Ægypt* to the *Indies*, it must be understood of the Princes of *Greek* Extraction; for during the Empire of the *Persians*, who had no occasion for the *Ægyptian* Ports to carry on their *Indian* Trade, the Commerce of the *Ægyptians* with the *Indies* had been so much interrupted, that the *Indian* Seas were believed to be unnavigable.

The *Phœnicians* were, next to the *Ægyptians*, the most ancient Navigators; they inhabited the maritime Coasts of *Syria*, bordering on *Palestine*: their Country is properly called *Phœnice*, not *Phœnicia*; *Phœnicen illustravere Phœnices*, saith *Pomponius Mela*, *solers hominum genus, & ad belli pacisque munia eximium, literas, & literarum operas, aliasque etiam artes, maria navibus adire, classe confligere, imperitare gentibus, regnum prœliumque commenti*; a great Character indeed, to be skilled in Arts and Sciences, addicted to Navigation and Commerce, powerful and valiant to maintain the Empire of the Seas.

The Commerce of the *Phœnicians* lying more towards the West than that of the *Ægyptians*, was the occasion of their being celebrated by ancient Authors as the Inventors of Astronomy and Navigation. When *Pliny* names the *Pœni* as Inventors of Navigation, it must not be understood of the *Carthaginians*, but of the *Phœnicians*, from whom the *Carthaginians* were descended. They navigated into the Ocean by the Straits of *Gibraltar*, established many Colonies; *Thebes* in *Bœotia*, *Cadiz*, and *Carthage* it self, which was built fifty Years before the Destruction of *Troy*. It was under the Conduct of the *Phœnicians* that *Solomon's* Fleets failed to *Ophir* and *Tharsis* from the Ports of *Ailath* and *Esiongaber* on the Red Sea. *Ophir* was the general name of the Eastern coast of *Africa*, and *Tharsis* that of the Western coast both of *Africa* and *Spain*. This Commerce *Jehosaphat*, King of *Judah*, endeavoured to renew, but his Enterprise was blasted by the Destruction of his Vessels in the Harbour. The Character which *Josephus* (in his Book against

[a] Lib. 3.

against *Appion*) gives his Countrymen is pretty true; that being a Mediterranean People, they contented themselves with Husbandry, and did not meddle with Trade; accordingly the *Jews* manned their Ships with the Inhabitants of the maritime Ports of the Country, of which they possessed chiefly the inland places. *Joppa* is the most famous Port mentioned in the Scriptures. It is past doubt that the Cape of *Good Hope* was doubled in those early times; and that the *Portuguese* were not the first Discoverers of that Navigation.

The *Phœnicians*, of all the Ancients, resembled most the *Dutch*, their Country being narrow, low and boggy, and by great Industry and Expences defended from the Sea. Those inconveniencies were ballanced by the Number and Goodness of their Harbours, amongst which the chief was antient *Tyre*[s], at first built upon the Continent, and fortified so well, that it was able to repel the great Army of *Salmanazar*[t], and suffer thirteen Years Siege by that of *Nebuchadonozor*, the Hardships of which induced the Inhabitants afterwards to transport themselves and their effects into a neighbouring Island, where they built a new *Tyre*, far surpassing the other in Splendor and Wealth. This *Tyre* continued untill the time of *Alexander* the Great, who took it and sack'd it after a most barbarous manner, and by establishing the staple at *Alexandria* in *Ægypt*, made one of the greatest Revolutions in Trade that ever was known.

The *Greeks*, in their Lists of such as have been Masters of the *Mediterranean*, give the seventh place to the *Phœnicians*, and the eighth to the *Ægyptians*; but they were always reproached by the *Ægyptians* as Novices in Antiquity. For the *Phœnicians* were much older Sailers than the *Greeks*: the naval Expedition of their *Hercules* mentioned by *Sanchoniathon* under the Name of *Melcanthus*, being three hundred Years before that of *Jason*.

Persia is commodiously situated for Trade both by Sea and Land; it has on the Southside of it the *Indian* and *Arabian* Seas, and *Persian* Gulph; towards the North the *Caspian* and *Euxine*; besides the

[s] A. M. 2747. Joseph. Antiquitat.

[t] *About the Age of the World* 3400. Vid. Philostrat. *History of* Phœnicia *and* India.

the Advantage of great navigable Rivers, ſuch as the *Euphrates* and *Tigris:* notwithſtanding all which natural Conveniencies they never diſcovered any great genius for Trade and Navigation. [u] *Semiramis,* who reign'd in that Country, made a great Figure at Sea, and was ſuppoſed to have invented Gallies, of which ſhe is reported to have had no leſs at a time than three thouſand with brazen *Roſtra*; but her Fleet was not man'd with the Natives of the Country.

A.M. 3273. *Salmanaſar,* one of her Succeſſors, man'd his Fleet with his *Phœnician* Subjects, but it was ſo ill conducted, that the *Tyrians* deſtroy'd it with leſs than ten Ships. The Fleets which *Darius* and *Xerxes*[x] rigged out againſt the *Athenians,* were built and man'd by their Tributaries and Allies, who dwelt in the Coaſts and Iſlands of the *Mediterranean:* We have a Liſt of *Xerxes*'s Fleet[y] conſiſting of 1207 *Triremes,* tranſmitted to us by ſuch as write the Hiſtory of that War, *Phœnician* and *Syrian* Ships 300, *Ægyptian* 200, *Cyprian* 150, *Cicilian* 100, *Pamphylian* 30, *Lycian* 50, *Carian* 70, *Ionian* 70, *Iſlanders* 17, *Æolian* 60, *Helleſpontian* 100; beſides theſe there were leſſer Ships of thirty and fifty Oars, furniſhed by the *Cercurians* and *Hippagines,* which made up the Number. In all this Liſt there is no mention made of the *Perſians.*

After the Victory that *Cimon*[z] the *Athenian* Admiral obtained over the Fleet of *Artaxerxes Longimanus,* the *Perſians* had renounced all Pretenſions to the *Grecian* Seas, obliging themſelves not to approach them within three days ſail; nor to ſend any man of war into the *Lycian* Sea (on the Coaſt of *Aſia Minor* over againſt *Rhodes*) or *Pamphylian* Sea (between the Continent and *Cyprus*) towards the South; or the *Euxine* Sea towards the North. Nothing could be a greater indication of a genius quite oppoſite to naval Skill and Commerce than ſuch an unſucceſsful War and diſhonourable Treaty, unleſs it was their interrupting the Navigation of their great Rivers, *Euphrates* and *Tygris,* by Cataracts, to hinder the Invaſion of foreign Nations. [a] *Strabo* takes notice of them, telling us, that before they were made, the *Tygris* was navigable as far as the

[u] Herodot. lib. 1.
[x] *About* Olympiad 75. A. M. 3525.
[y] Herodot.
[z] Vid. Diodor. ad Olympiad. 82. Ann. 4.
[a] Lib. 16.

the Ground where *Seleucia*[b] afterwards ſtood, and the *Euphrates* as far as *Babylon*[c]. *Alexander*, conformably to his uſual genius, broke down thoſe Caſcades, and opened the Navigation of the Rivers; but in proceſs of time the ſame vile ſpirit prevailed, and they were ſet up[d], and ſubſiſted in the time of the Emperor *Juſtinian*. They were ſince demoliſhed a ſecond time, and a great Trade carried on by the Rivers, the moſt famous Staples of which were *Siraf* on the *Perſian* Gulph, and *Omana*, of which[e] *Pliny* ſpeaks as a Place of great Trade, and different from a City of the ſame Name in *Arabia*.

Alexander made himſelf Maſter of the *Indian* Sea, and deſtroyed the Fleet which he had on the *Mediterranean*, to take from his Soldiers the Hopes of a Retreat, or rather to ſave charges; but to ſhew how little he conſidered the Sea-craft of the *Perſians*, he employed none of that Country in his Fleet, but man'd it with *Carians*, *Phœnicians* and *Cyprians*. His great Projects calling him elſewhere, he gave Charge of a naval Expedition to *Nearchus*, who ſail'd out by the *Indus*, and returned to *Perſia* by the *Paſitygris*[f]. The Succeſſors of *Alexander*, *Ptolomy Philadelphus*, *Antigonus* and *Seleucus* ſignaliz'd themſelves as much at Sea as at Land, of whoſe naval forces we ſhall ſpeak afterwards. No *Perſian* Monarch ever made a greater Figure at Sea than *Mithridates*, who diſputed the Empire of the *Mediterranean* with the *Romans*, made himſelf Maſter of it from the *Cilician* to the *Ionian*[g] Sea; and to repreſs the *Roman* naval Power, and interrupt their Trade, fill'd the whole *Mediterranean* with Pyrates as far as the Straits of *Gibraltar*.

Tho' the *Perſians* had no great genius for Traffick by Sea, they had a very great Commerce by Land; and the antient *Arſacia*, the Seat of ſome of the *Perſian* Kings, the ſame with the preſent *Caſwin*, grew potent and very rich by its inland Trade. The *Caſpian* and *Euxine* Seas furniſhed the *Armenians* with the Goods which they carried

b *This was the* Seleucia Parthorum *in* Meſopotamia, *not far diſtant from* Babylon, *at the Confluence of the* Tygris *and* Euphrates.

c Bagdat *does not ſtand where antient* Babylon *was; for it is ſeated upon the* Tygris, *whereas* Babylon *was upon the* Euphrates. Babylonia *is now called* Caldar.

d Ammian Marcellin. lib. 24.

e Lib. 36. cap. 28.

f *The lower part of the* Tygris.

g *All the Sea between* Sicily, Italy *and* Greece *is called the* Ionian *Sea, of which the* Adriatick, *ſpeaking properly, is but a part.*

carried into *Persia*; and the Trade of *China* and *India*: they descended into the *Caspian* Sea by the [h] *Oxus*, and remounted again by the *Cyrus* [i] near the *Euxine*, from whence they were transported to the *European* Countries: *Paul Centurion* a *Genoese* endeavoured to recover that Trade in the time of Pope *Leo* X. and proposed to *Basil*, Czar of *Muscovy*, to transport *Indian* Goods to *Astracan*, and from thence up the *Wolga* to *Muscow*, and to *Riga* by the Rivers of *Mosca* and *Duna*. Duke *Frederick* of *Holstein* went unsuccessfully about the same Project.

The *Trojans* were another *Asiatick* Nation powerful at Sea. Their Empire began about the Year of the World 2530. Their Situation on the *Asiatick* side of the *Hellespont* was the most commodious for Trade and Navigation of any in the World, and raised them to a great height of Splendor and Riches in a little time. But their Empire subsisted only about an hundred and forty years, being destroyed by the *Greeks*.

We come now to the Navigation and Commerce of the *Carthaginians*. *Carthage* was founded or rather rebuilt by *Dido* about *A. M.* 3132. and peopled with a Colony of the *Tyrians* or *Phœnicians*; so that, as we hinted before, when the *Pœni* are said to be the Inventors of Navigation, it is to be understood of the *Phœnicians*. *Horace* calls the *Carthaginians* and *Tyrians uterque Pœnus*, [l] *Cicero* calls the Inhabitants of *Cadiz*, *Pœni*. The *Carthaginians* retain'd all the Cunning and Industry of the People from whom they were descended. [m] In the Scriptures the *Tyrians* are commended for their Skill in Carpenter's work, and all other Arts relating to Architecture, they being employ'd by *Solomon* in building the Temple.

The *Carthaginians* were always famous for dressing of Leather, an Art which the *Maroquines*, Inhabitants of the same Country, possess to this Day. They were much jested upon by the *Romans*, and call'd Porridge Eaters, for their Parsimony, being a Reproach they were not ashamed of, but in return made as great a jest of the *Romans* for their scarcity of Plate, in one of their first Embassies, as we observed before. The City of *Carthage*, at the beginning of the

h *Upon this River* Alexander *built a Town, called* Alexandria Oxiana.

i Cyrus, *now called* Kur, *it runs through the Country of* Mohan.

k Appian. Histor. Bell. Punic.

l Cicero pro Balbo.

m 1 Kings v. 6.

the third *Punick* War had 700000 Inhabitants. It was once Mistress of three hundred Cities, possessed all that Tract of Land from the Straits of *Gibraltar* to the greater *Syria*, besides a great Extent of Territories without the Straits on the Coast of *Africk*, (where *Hanno* established many Colonies) and a part of *Spain*, particularly the magnificent City of *Carthagena*, which they built: besides the Island in the Ocean far beyond the Straits of *Cadiz*, of which the Author of the Book of Wonders, attributed to *Aristotle*, and likewise *Diodorus Siculus*, makes such a Description, that many have been induced to believe it was *America*. The Objection of *Bochart*[n], that such a Navigation could not be perform'd without the Compass, is so far of no force, that *Diodorus* tells you they were carried there by a gust of Wind, probably the Trade Wind, which reigns between the Tropicks. So far is true, that the Senate of *Carthage* kept this Discovery of the *Fortunate Island* a great Secret, and forbad their People to transport themselves thither, for fear of dispeopling the Country.

Time has destroy'd two noble Journals of their Navigation, that of *Hanno* along the Coast of *Africk* without the Straits, and the other of *Hamilcar* along the Coasts of *Europe*: The *Periplus*, which is now attributed to *Hanno*, being supposed to be spurious. We shall have occasion to speak of the naval Affairs of this great People, as they interfered with those of the *Romans*.

[o]The *Greeks*, so call'd at first from some very obscure Burrough or Prince, a Name which they changed for that of *Hellenes* or *Achaians*, were the Descendants of Savages, ignorant of Agriculture, and browzing on Herbage like Cattle[p]; witness the divine Honours that they paid to *Pelasgus*, who first taught them to feed on Acorns. Their own Countryman *Thucydides* tells us, that when they were a little got out of their former miserable condition, they robbed at land, and pyrated at Sea.

By the *Greeks* may be understood, not only the Inhabitants of that part of the Continent called *Greece*, but those of the Islands of the *Mediterranean*, and the Coast of *Asia Minor* where they sent

n Lib. 5. o Plin. lib. 4. cap. 7. p Apollodor. lib. 2. cap. 1.

ſent Colonies, without excluding the *Sicilians* and the *Tyrrhenians*, and ſeveral of the Inhabitants of *Italy*. *Minos*, King of *Crete*, was the firſt Man that civiliz'd this Nation; he rig'd out a Fleet, and made himſelf Maſter of the *Archipelago* and it's Iſlands, leaving his Children Governors of the Countries he had ſubdued. After this the *Greeks* began to build Towns on the Sea Coaſts. The Kingdom of *Argos*[q] was founded by *Inachus*, according to common Chronology *A. M.* 1249. ſix hundred and ſeventy ſix years before the Deſtruction of *Troy*. The Expedition of the *Argonauts* happened *A. M.* 2743. (which account I ſet down only as conjectural, till the perfect one, which the World ſo much longs for, doth appear) it was partly mercantile, partly military. The Myſtery of the golden Fleece is variouſly explain'd, either of the Profit of the Wool Trade of *Colchis*, or of the Gold that they commonly gather'd with Fleeces in the Rivers. The Ship *Argo*, in which they ſail'd, was perhaps larger and better equip'd than any that had been before, but could not be of extraordinary ſize, ſince the *Argonauts* were able to carry it on their Backs from the *Danube* to the *Adriatick* Sea.

A. M. 2821. The next remarkable Expedition of the *Greeks* was againſt *Troy*.[r]

Thucydides does not allow the poetical Liſt of Ships in that Expedition; beſides, as he ſaith, moſt of them were open Boats, and the Soldiers were the Rowers.

After the *Trojan* War the *Greeks* applied themſelves with great diligence to naval Affairs. *Thucydides* gives the preference in Antiquity to the *Corinthians*, who were the Inventors of *Triremes*. After them the *Ionians* ſucceeded to the Empire of thoſe Seas, and were able to maintain it againſt *Cyrus* and his Son *Cambyſes*.

[s] The *Phocæ*, who were the Founders of *Marſeilles*, were able to deal with the *Carthaginians*. In all thoſe Wars there were few *Triremes*,

[q] Argos *the City is now call'd* Argo, *a very obſcure Village in the* Morea.

[r] *The Ruins of* Troy *are pretended to be ſhewn at this Day in* Aſia Minor *before you enter the* Helleſpont.

[s] Phocæa *is now call'd* Foia Vecchia, *not far from* Smyrna *in* Aſia Minor.

Triremes, most of them being of one Tire of Oars of fifty Banks. But the Tyrants of *Sicily*, *Gelon* and *Hieron*, and the Inhabitants of *Corfu* augmenting the number of their *Triremes*, obliged other States to do so likewise.

Thucydides owns that in those early times the *Athenians* and ' *Eginetes* made no great Figure at Sea, their Ships being only of one Tire of fifty Oars; and this even when they put their chief Confidence in their Fleet in their War with *Xerxes*. Yet *Xenophon* (*De Provent.*) who wrote shortly after *Thucydides*, makes *Athens* a City of great Trade.

The Conduct of *Sparta* in this particular seem'd to be unaccountable; for they discourag'd Trade, and yet were very ambitious of maritime Power. *Pausanias* acquaints us, that before the Reign of *Polydorus*, King of *Lacedæmon*, Commerce was carried on without Species of Gold or Silver, only by the Exchange of Commodities. *Trogus* pretends, that this was rather from a principle of Virtue than Ignorance, and that *Lycurgus* had forbid the use of Silver and Gold Coin, from a prudent foresight of their mischievous Effects. It is here to be observed, that the famous Games instituted in the several Cities of *Greece* were partly for Trade, as well as for the Encouragement of manly Exercises, being somewhat of the nature of the *European* great Fairs.

It is with great Assurance that the several Cities of *Greece* dispute the Invention of different sorts of Ships, when the *Phœnician* and *Ægyptian* Vessels, from whom undoubtedly they had their Models, were daily to be seen in their Harbours. They have indeed one thing which they may claim as an Improvement of the *Phœnician* Navigation; for the *Phœnicians* conducted their Ships by the *Little Bear*, and they by the *Great Bear*. But their Navigation was still confin'd to the *Mediterranean*, till about six hundred years after the Expedition of the *Argonauts*, when *Cœlus* of *Samos* sail'd out of the Straits of *Gibraltar* as far as the City of *Tartessus*, at the Mouth of the *Bætis*, now *Quadalquiver* (an *Arabick* Word) not far from the said Straits.

G g *Polycrates*

' *Inhabitants of a little Island over-against* Athens; *it is now call'd* Engia.

* *Polycrates*, Tyrant of *Samos*, taught the *Samians* their Arts, and carried their naval Power to a great height. He had an hundred *Biremes*, which were bigger than the *Grecian* Ships of his time.

After the *Trojan* Expedition, Commerce flourish'd amongst the *Greeks*. *Solon* himself, as *Plutarch* relates of him, repair'd his Fortune by Trade, which had been ruin'd by his Father's too great Generosity. There is a remarkable Passage in *Plutarch* on this occasion to the honour of Trade. "In those times (saith he) as *Hesiod* relates, no Labour or Profession was shameful, Trade made no "Difference amongst Mankind. Traffick was in great Esteem, "procuring honourable Alliances, and Knowledge of many things. "Merchants have founded great Cities, as he who built *Marseils*, "and was so well receiv'd by the *Gauls*. *Thales* is reported to "have merchandiz'd, *Hippocrates* the Mathematician, and even "*Plato*, whose principal Aim in his *Ægyptian* Voyage was to sell "his Oyl.

Castor the *Rhodian*, cotemporary with *Augustus*, compos'd a History of such as had been possess'd of the Empire of the *Mediterranean* Sea from *Minos* down to the *Æginetæ*, for the space of four hundred Years. From this Author *Eusebius* took the List of his Chronicle.

The *Lydians* ᵘ inhabiting the Country near *Smyrna* in *Asia Minor*, first in that List, were the Inventors of Money, the principal instrument of Commerce.

The *Pelasgi*, so call'd from *Pelasgus* the Brother of *Hermogynes*, were antient and great Navigators; they first inhabited *Arcadia*, but peopled the Island of *Lesbos*, which from them was call'd *Pelasgia*. The *Pelasgi* built *Spina* at the mouth of the *Po*, which held the Empire of the neighbouring Seas till it was ruin'd by the Barbarians. The *Tyrrhenians* were their Neighbours, whose principal City was *Luna*, a good Harbour.

Of all trading Nations, none acquir'd a greater Reputation than the *Rhodians*; being constituted by the *Romans* as the sovereign Judges

* *About* Olympiad 63.

ᵘ Herodot. lib. 3.

Judges of all Controversies relating to Commerce; and their Laws are appealed to, even at this Day.

The *Phoceans* founded the City of *Marseills*, which made a great figure at Sea. The *Massilians* sent Vessels into the Ocean, Southward under the Conduct of *Euthymene*, and Northward along the *European* Coast under the Conduct of *Pythias*.

About a hundred years before the time of *Alexander* the Great, the *Athenians* and *Lacedæmonians* disputed the Empire of the Seas. Afterwards arose *Philip* King of *Macedon*, who endeavour'd to wrest it from them both: His Pretence for making War upon his Neighbours was their Pyracies: tho' when he wanted Money he practised the same Trade; particularly when he was straitned in his Financies at the Siege of *Byzantium*.

The *Greeks* all this while maintain'd their Commerce with the *Ægyptians*, their Instructors in the Art of Navigation. *Amasis*, King of *Egypt*, assigned them *Neucratis* for their Staple Port.

Before we speak of the great Revolution in Trade, which happen'd by the Destruction of *Tyre* by *Alexander* the Great, it will be necessary to say something of the Trade of the *Arabians* and *Ethiopians*.

Before the *Ægyptians* traded to the *Indies*, their principal Commerce was with the *Arabians*. *Arabia Fœlix* (the Name of the Country as well as principal Port) was the Magazine of both the *Ægyptian* and *Indian* Commodities. This Harbour was afterwards called *Portus Romanus*. The Country was likewise call'd *Aden*, by an *Hebrew* Name, signifying *Happiness* or *Delight*, abounding in all the rich Commodities of the World.

The Trade to *Arabia Fœlix*, according to *Pliny*, cost the *Romans* yearly about 807291 *l.* It was advantageously situated, there being an easy passage from it to *Ægypt*, *Ethiopia*, *Persia* and *India* by Sea; and to *Phœnicia*, *Syria* and *Mesopotamia* by land.

The Country of the *Ethiopians* (by which may be understood all that tract of Land in the South of *Africk* from the Tropick of *Cancer* to the Ocean) abounded with several precious Commodities, as Silver, Gold, Ivory, some precious Stones, and

the Wood *Algummim.* Those Commodities were likewise brought to *Arabia Fœlix.*

From these Considerations it will follow, that a Place, which had an easy Communication with the *Sinus Arabicus*, or the Red Sea, *Ægypt* itself, *Ethiopia*, and likewise the *Mediterranean*, was a proper Staple for all the Trade of the World: therefore it was a very natural Thought in *Alexander* the Great, after the Destruction of *Tyre*, to establish the Seat of Trade at *Alexandria*, his Name-sake and favourite City, which had all those Advantages: besides he was induced to this in revenge to the *Carthaginians*, hoping that *Alexandria*, being situated between *Tyre* and *Carthage*, might get the Trade from them both; tho' at the same time he took care to establish a Colony of his own people at *Tyre*. *Alexandria* had the Island of *Pharos* before it, and the Lake *Marcotis* behind it, which communicated with the *Nile*. It soon grew an eye-sore to the *Carthaginians*.

Another mark of *Alexander*'s great Consideration of Trade, was making Harbours at the Mouth of the River *Indus*, which he did by the Advice of some *Phœnicians*. He had undertaken a new Sea Expedition from the *Phalocapas*, a Branch of the *Euphrates*, to visit the Coasts of *Arabia Fœlix*, where he resolved to establish the Seat of his Empire. He intended to sail round the Cape of *Good Hope*, but all those great Projects were prevented by Death. During the last two Years of his Life, he had opened again the Trade between *Ægypt* and the *Indies*: so natural was it for a Prince, who had proposed to himself the Empire of the World, not to neglect the Sea, the half of his Dominion.

His Successors pursued the Steps of their great Master in this particular. The *Ptolomies* in *Ægypt* applied themselves diligently to Commerce. * *Ptolomy Philadelphus*, a Prince of an infirm Constitution, but of a noble Spirit, open'd the Water-carriage from *Alexandria* to the *Indies*, by establishing Staples on the Canals of the *Nile*, quite to the *Red Sea*. Of his Fleet, and particularly of two Ships of extraordinary Bulk, we shall have occasion to speak

* *About* Olympiad 125.

ſpeak afterwards. *Alexander* had left *Grecian* Governors and Colonies in the *Indies*, but they were almoſt exterminated by *Sandrocottus*; *Seleucus* recovered the Sovereignty in ſome degree; but was forced to abandon to *Sandrocottus*, the Country along the Banks of the *Indus*, and ſome Cities which *Alexander* had built. *Seleucus* left *Patroclus* Lieutenant of that Country, who wrote Commentaries which are loſt by the Injury of Time.

Ptolomy Philadelphus ſent *Dionyſius*, an able Mathematician, to the *Indies*, and *Megaſthenes* Envoy to King *Sandrocottus*. *Megaſthenes* left ſome Relations of that Embaſſy, of which there are a few Extracts yet remaining. *Ptolomy* ſent afterwards *Dimachus* Envoy to *Altritrochades*, Son of *Sandrocottus*, who likewiſe compos'd ſome Memoirs of his Negotiation. By thoſe means the *Indian* Trade was reſtor'd again to *Ægypt*, and continued during the Race of the *Ptolomies*.

The Succeſſors of *Alexander* made war upon one another, particularly *Seleucus* upon *Antigonus*, in which there were great Fleets fitted out on both ſides in the *Mediterranean*. *Antigonus* was a Prince of a great Genius; for, having to do with *Ptolomy*, *Lyſimachus* and *Caſſander*, Maſters of the Sea, he ſent out a Fleet with great Induſtry from the Coaſts of *Phœnicia*, to diſpute with them this Empire of the Sea: he had promiſed to his Army, who were diſcourag'd at the ſight of *Seleucus*'s Fleet, conſiſting of an hundred Sail, that at the end of the Summer they ſhould ſee a Fleet of his of five hundred Sail: he kept his word nearly as to the Number, but effectually as to recovering the Command of the Sea. He made himſelf Maſter of the City of *Tyre*, which, even after the Deſtruction of *Alexander*, had recovered in ſome degree its Trade. This was a wonderful Effect of the Vigour of a great Prince, and a great Indication of a maritime Genius remaining in that part of the World.

Pliny ſpeaks confuſedly of the Navigations of *Seleucus* and *Antigonus* in the *Caſpian*, which he erroneouſly ſuppoſed to be a Gulph of the *Scythian* Ocean. *M. Huet* juſtly complains of *Alexander* and his Succeſſors

Successors for introducing great Confusion in Geography, by the ridiculous Vanity of new naming the places which they conquer'd.

The Descendants of the Successors of *Alexander* cultivated Navigation in some lesser degree with various Success, till they were all subdued by the *Romans*.

During the Wars of *Seleucus* and *Antigonus*, the *Rhodians* had signaliz'd themselves at Sea: it seems to have been the Policy of that wise trading Nation to keep an exact Neutrality, as far as they were able. They made it their Business to clear the Seas of Pyrates, and pursued their Trade; but as their Country subsisted by *Ægypt*, they had more Inclination for *Ptolomy* than any of the rest, therefore they were resolved generously to suffer the last extremities rather than enter into an Alliance with *Antigonus* against him. They sustain'd a Year's Siege by *Demetrius*, the Son of *Antigonus*, who had not his Equal in the Art of besieging Cities. He had a Fleet of four hundred Sail before their City; and yet after all they oblig'd him to raise the Siege, and made an advantageous Peace. They pursued the same Maxim with the *Romans*, cultivating their Friendship, but endeavouring to preserve their Neutrality. This embroil'd them afterwards with *Philip* of *Macedon*, in his Wars with the *Romans*; and with *Mithridates*, who did not find his account in quarrelling with that great and wise Nation.

The History of Navigation about this Period is more particular and distinct, and in order to understand it, it is necessary to say something of the different Names, Figures, and Bulks of Ships. The first Division of Ships was into Ships of War, called by the *Romans Classicæ*, and Ships of Burthen or *Onerariæ*. The first sort went with Oars, the second with Sails commonly, tho' both were sometimes used. The *Classick* were called long Ships, the *Onerariæ* round, because of their Figure approaching towards circular or oval: This Figure, tho' proper for the Stowage of Goods, was not the fittest for sailing, because of the great quantity of leeward way, except when they sail'd full before the Wind. There was likewise

a mixt sort betwixt the long and the round, which *Appian lib.* 5. describes thus: *Octavia, impetrata ab Antonio licentia, decem phaselos triereticos fratri dono misit, id est mixtos ex longarum forma & onerariarum.*

Another distinction of Vessels was *Apertæ* or open Boats, and *Cataphractæ*, such as had Decks. The first were called *Aphractæ*.

Some of the long Ships were called *Actuariæ*, because of their great Swiftness, which the *French* translate *Brigantines*. *Cicero*, in an Epistle to *Atticus*, calls a Ship *Decem Scalmorum*, of ten Banks of Rowers, *Actuariola*. The little Vessel, which *Cæsar* went aboard of at *Brundusium*, *Plutarch* calls Πλοῖον Δοδεκάσκαλμον, a Ship with twelve Banks of Oars. *Suetonius* calls it *parvulum Navigium*.

There were *Myoparones*, *Hemioliæ*, *Greek* names for Ships of War, and may be properly translated Frigats; *Lembi*, little Ships, good Sailers, which the Pyrates used; they sometimes had *Rostra*.

Liburnæ were a sort of light Ships, so called from the *Liburni*, a people of *Illyria*, who pyrated in them: They were *Biremes*:

Ordine contentæ gemino crevisse Liburnæ. Lucan.

The *Romans* called all their light Ships *Liburnæ* or *Liburnicæ*.

Amongst the Ancients all great Ships had *Scaphæ* or Boats.

In the first maritime Was of the *Greeks* their Ships must have been very small, for * *Xenophon* writes that the *Athenians* put aboard a Fleet of an hundred sail, a thousand armed Men and four hundred Archers, about fourteen men a-piece, besides the Rowers. The Ships of *Xerxes*'s Fleet must have been bigger; for, as † *Herodotus* relates, there were 1207 Ships, and aboard them, according to his Computation, two hundred and thirty men a-piece.

The manner of Sea Engagements of the Ancients (which was to bore and sink the Enemy's Ships with the *Rostra*) gave bulky and high Ships a great Advantage over their Enemies, by the force of

* Lib. 2. Hellen. † Herodot. lib. 7.

of the Stroak of a large Ship. The Height was likewise no small Convenience in boarding, and throwing of missile Weapons. So that it was much more true amongst them than amongst us, that a little Ship durst not lay her side to a great one: and tho' great Ships were commonly bad Sea Boats, they had a superior Force in a Sea Engagement. The Shock of them being sometimes so violent, that it would throw the Crew on the upper Deck of lesser Ships overboard. This occasion'd the Ancients gradually to encrease the Bulk of their Ships, till they came at last to an enormous size. This could not be done by one Row or Tire of Oars, but by several, therefore they built *Biremes*, *Triremes*, *Quinqueremes*, and, if we may believe them, some with forty Tire of Oars.

I shall not enter into the manner of construction of such large Vessels, seeming a thing impossible to moderns skill'd in Sea Affairs; however, that such Banks of Oars were not all in the same Plain, but rais'd above one another, is evident from the Figures and Descriptions of ancient Ships, and many other Passages of Authors.

In *Triremes*, the upper Rowers were called *Thranites*, the middle *Zygites*, the lower *Thalamites*. There is a passage in an old Scholiast of *Aristophanes* that explains this matter otherwise, and tells you that *Thranites* were in the Stern, the *Zygites* were in the Midship, and *Thalamites* in the Prow: but he was a Writer of a later Age, ignorant of Sea Affairs, and lived after the time of *Theodosius*, when *Triremes* were no more used. *Lucan*, speaking of the Vessel of *Brutus*, tells us that the higher Oars touched the Sea at a great Distance.

------ *Summis longe petit æquora Remis.*

Silius Italicus lib. 14.

Intrat diffusos pestis Vulcania passim,
Atque implet dispersa foros, trepidatur omisso

Summis

Summis Remigio; sed enim tam rebus in arctis
Fama mali nondum tanti penetrarat ad imos.

By which Passage you see the Fire might be amongst the upper Tire of Oars before the knowledge of it had reach'd to the lower.

Arianus, speaking of a *Biremis*, saith αὐτῶν τὰς κάτω κώπας οὐκ ἐπὶ πολὺ ἔξω ἐχούσας τοῦ ὕδατος, that the lower Tire of Oars were little above the Water.

The different orders of Rowers had different Rates of Pay. The *Thranitæ*, as * *Thucydides* tells you, had better pay, because they wrought with longer Oars. *Appianus, lib. 5. de Bello Civili*, has a passage, which puts the matter beyond all doubt, which translated runs thus: " *Agrippa* attack'd the Ship of *Papias*, he " struck it under the Prow, and split it down to the Hold, " those who were upon the Towers to defend the Ship were " thrown overboard, the Water which the Ship took drowned " the *Thalamitæ*; the Deck being broken, the other Rowers saved " themselves by swimming." Thus we see in the Quotation from *Silius Italicus*, that when the Ship was fir'd aloft, the *Thranitæ* were in most danger; and from that of *Appian*, that when the Water broke in below, the *Thalamitæ* were drowned, and the *Thranitæ* escap'd.

Pausanias, in his *Atticks*, speaking of a Ship of *Delos*, saith that it had from the Deck downward nine Rowers.

A passage of *Memnon*, related and translated by *Palmerius*, runs thus: " The *Leontophoros* was a Ship admirable as well for its beau- " ty as its bulk; it had eight Tire of Oars, an hundred at each " Tire, eight hundred on each side, in all 1600." This passage and some others have occasion'd a great Dispute among the Antiquaries, whether there were more than one Man at the long Oars of ancient Ships, it seeming a thing impossible for such long Oars to be managed by one Man.

* Lib. 6.

All the Writers of *Tacticks* agree in this manner of Construction of Ships with several Tires of Oars, particularly an anonymous Author acquaints us with the Phraseology. *Triacontorus, Tessaracontorus, Pentecontorus,* saith he, are so term'd from the number of Oars; but *Uniremis, Biremis, Triremis,* &c. denote the number of Orders or Tires of Oars. If there were yet any doubt of this matter, the Figures of ancient Ships remaining are an ocular demonstration, in which it is observable, that the *Columbaria*, Pigeon-holes, as they were called, thro' which the Oars passed, are not placed immediately over one another in the same vertical plain, but by way of *Quincunx*, or chequer'd, which in effect brings the case to the supposition of *Fabretti*; and the Problem is reduced to this, what perpendicular height is necessary to place several ranks of Rowers as it were upon Steps of Stairs in a Plain inclin'd to a horizontal Line in a given Angle? *Quinquiremes*, which were the greatest Ships in common use, are very possible after this manner.

There are some Ships of enormous Bulk mention'd by the Ancients, built more for Ostentation than Use. *Demetrius Poliorcetes*, of whose naval Wars we shall speak afterwards, seems to have been the best Ship-builder amongst the Ancients, of whom *Plutarch* reports, that the Bulk of his Ships surpriz'd his Friends, and their Beauty created some Delight in his Enemies. He built two Ships of sixteen and another of fifteen Ranks of Oars, which moved as easily as those of a lesser size; and warlike Machines for Sieges so well contriv'd that they astonish'd his Enemies: so that *Lysimachus*, his mortal Foe, having obtain'd the favour of seeing his Ships and Machines, surpriz'd at the Contrivance, cried out, that they were built with more than human art.

Athenæus gives the following List of the Fleet of *Ptolomy Philadelphus*; two of thirty Tires of Oars, one of twenty, four of thirteen, two of twelve, fourteen of eleven, thirty of nine, thirty seven of seven, five of six, seventeen of five, double that Number of four, and of three and an half which were called *Trieremiolia*; the rest of the Ships, which were distributed throughout the whole Empire, were above four thousand.

What

What *Athenæus* relates from *Calixenus* of two Ships built by *Ptolomy Philopator* is still more surprising; " That Prince, saith he, built " a Ship of forty Ranks of Oars, its length was 280 Cubits, breadth " 38, the * *Acrostolion* on the Prow was 48 Cubits above the Wa- " ter, † that on the Stern 53. It had four Rudders, each of 30 Cubits. " The Oars of the *Thranitæ* or highest Ranks of Rowers, 38 Cu- " bits, which were easily managed because the part within the Ship " was counterpois'd with Lead. It had two Prows and two Sterns, " twelve Decks, each 600 Cubits in Circumference. To give the " Ship her due Motion, required 4000 Rowers, and 400 other " Seamen; 2800 Soldiers to defend it, besides a great number of " other Officers, as Commissaries of Provisions, *&c.*" I shall not enter into the Credibility of this Description, or the Mechanism of the Ship: only taking the account as it stands, and comparing it with one of our first rates of 100 Guns, of which I believe the Dimensions may be, length of the lower Gun Deck 170 feet, length of the Keel for Tunnage 135 feet, breadth from out to out 48, depth in the Hold 19½. By the common Rule for measuring of Tunnage: the Length of the Keel 135×48 the breadth, and this multiplied by 24 the half breadth, dividing the Product by 95, because we suppose both Ships without Guns, will give in round numbers 1637 for the Tunnage.

In the measure of *Ptolomy*'s Ship, because it was a *Greek* who describes it, we shall make use of our own Cubit of a foot and a half, which differs very little from the *Grecian*: the Dimensions of the Ship are

	Cubits.		*Feet.*
Length	280	=	420
Breadth	38	=	57
½ Breadth	19	=	28,5

420×57×28,5 the Product is 682290; which divided by 95 gives 7182, so that the Proportion of the Burthen or Tunnage of this Ship of *Ptolomy* to one of ours of an hundred Guns is 7182 to 1637, near 4½ to 1. Hh 2 This

* Gratings. † Quarter-deck

This Computation proceeds on the Supposition that those Ships were similar Solids, which perhaps is not true, but we can compute on no other.

The *Thalamegus* was a Ship built by the same *Philopator* for sailing on the *Nile*, describ'd likewise by *Calixenus* of a surprising Bulk, Beauty and Expence. We shall not enter into a Detail of all the particulars, it being rather a floating Palace than a Ship, but consider it in relation to our present purpose as to the Dimensions, which stand thus,

	Greek.	Feet.
Length	½ Stadium or	300
Breadth	30 Cubits or	45
½ Breadth	15 Cubits or	22,5
Depth	40 Cubits or	60

And 300x45x22,5 give 303750, which divided by 95 makes 3197 Tuns for the Burden: so that the *Thalamegus* was about double one of our 100 Gun Ships. But a more exact way of computation will be, instead of taking half the Breadth to take the Depth of the Hold, which is proportionably much greater in the antient Ships abovementioned than in ours, and indeterminately expressed in the Description. For in the first Ship the Height of *Acrostolion* above Water is mentioned to be 48 Cubits: in the second, the height of the Tent or Auning above Water 40 Cubits.

Hiero, King of *Syracuse*, employed *Archias* under the Direction of *Archimedes*, to build a Ship of immense Bulk and Expence. *Athenæus* writes that there was as much Wood cut from Mount *Ætna*, as would have built sixty *Triremes*, besides a great deal of Plank that was brought from *Italy* and other parts of *Sicily*. The Ship was built by halves, and the one half being finished, and by help of a Screw invented by *Archimedes* launch'd into the Water, the other half was join'd to it by great Brass Nails, weighing above ten pound a-piece, mortiz'd with Lead. It would be too tedious

tedious to relate all the Conveniencies, Apartments, Gardens, Walks, Baths, *&c.* aboard this Ship; among other things there was a Fish-pond, and a Reservoir holding two thousand *Metretes* of Water, that is, according to the Tables, above eighty five Tuns. It had several Tenders, particularly one mentioned, that was of the Burden of three thousand Talents; a Talent was sixty *Minæ*, and the antient *Attick Mina* was our Pound Averdupois, consequently two Talents made an hundred and twenty Pounds, called a hundred Weight, and forty Talents made a Tun, therefore this Ship was just seventy five Tun. There were other Tenders, which the Author saith were only five hundred Talents, or the sixth part of this, *viz.* twelve Tuns and an half.

There is great reason to believe that the antient Merchant Ships were much less than ours. *Cicero* tells you in his twelfth Epistle to *Lentulus*, that they discovered by intercepted Letters that *Dolabella* design'd, when his Affairs grew desperate in *Syria* and *Egypt*, to pack up bag and baggage, and sail for *Italy*, and for that purpose was about to seize upon transport Ships, the least of which was of two thousand *Amphoræ*, that is about fifty six Tun, which it seems he thought a large Ship; if it were only the measure of the Capacity, and not of the Burden, it would be still much less.

Pliny lib. 16. *cap.* 40. speaks of one very large Ship of Burden, which brought over from *Ægypt* the great Obelisk that stood in the *Circus* of the *Vatican* in the Reign of *Caligula*; which besides the Obelisk itself had 120000 *Modii* of *Lentes* for Ballast, 120000 *Modii* make 1138 Tun.

All those great Ships above mentioned fall very far short of the Capacity of the Ark, which, according to the Dimensions given us in the Scriptures, was 300 Cubits in length, 50 in breadth, and 30 in height: which supposing it a Parallelepiped, gives the Content $30 \times 50 \times 300 = 450000$ solid Cubits. The Cube of the *Jewish* Cubit in Feet and Decimals of a Foot is 6,0684024, this multiplied into the former Sum, gives 2730781,9 the Content of the Ark in Feet; 33,6875 cubical Feet make a Tun, there-

fore

fore dividing 2730781,9 by 33,6875, the Quotient is 81062 Tuns, the Capacity of the Ark; which being stow'd with things of no greater, and chiefly of less specifick Gravity than Water, would make the Capacity not much different from the Tunnage.

But, to return to the History of Navigation,

* The *Carthaginians* endeavoured to extend their Empire and their Commerce by the Conquest of *Spain*, *Sicily*, and *Sardinia*. They attack'd *Sicily* with various Success, and often lost there great Fleets and Armies. The two *Dionysii* maintain'd their Tyranny there with great Conduct and Force for fifty years together, with a Fleet of five hundred large Ships, 100000 Foot and 10000 Horse [a]. *Dionysius* the father had once chased them out of the Island. He was the first who built *Quinquiremes* [b]. *Timoleon*, who came after the *Dionysii*, forced the *Carthaginians* a second time out of the Island, tho' they had manned out against him a Fleet of two hundred men of war, and above two thousand Ships of Burden. These ill Successes did not discourage that ambitious and interested People, who looked upon *Syracuse* as the Rival of *Carthage*; they still pursued the same Scheme, and found afterwards a more dangerous Enemy in *Agathocles*, who from a Pyrate raised himself to be Tyrant of his Country. He not only beat the *Carthaginians* in *Sicily*, but besieged them in their Capitol in *Africk*, and [c] restored the *Sicilians* to the Empire of those Seas. After the Death of *Agathocles* the *Carthaginians* renewed their Pretensions upon *Sicily*: the *Sicilians* called to their aid *Pyrrhus*, King of *Epirus*, who joining his Ships to those of the *Syracusians*, composed a Fleet of more than two hundred sail, beat the *Carthaginians* at Sea, and made himself Master of the Island. But the *Romans* having obtained the same Advantages over him in *Italy*, as he had obtain'd over the *Carthaginians* in *Sicily*, obliged him to abandon both *Italy* and *Sicily*.

The

* *About* A.M. 3595. Olympiad 92.
[a] Vid. Diodor. Sicul. Justin. & alios.
[b] *About* Olympiad 109.
[c] *About* Olympiad 117.

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The *Carthaginians* diſputed with the ſame obſtinacy the Poſſeſſion of *Sardinia*, and with no better Succeſs. Their Attempts on this Iſland was the cauſe of the ſecond *Punick* War, of which we ſhall ſpeak afterwards.

The *Tyrians*, from whom the *Carthaginians* were deſcended, had eſtabliſhed a Colony at *Cadiz*; the People of *Cadiz* procured their aid againſt the *Spaniards*, in which War they had got poſſeſſion of ſome part of *Spain*. The great *Hannibal* afterwards extended their Conqueſts as far as the *Eber*. They were beat out of that Country by the *Romans*, of whoſe naval Power I ſhall now begin to ſay ſomething.

The *Romans*, incited by the Example of their Neighbours, and compelled to it by Neceſſity, began to think ſeriouſly of acquiring a maritime Force. *Polybius* tells us, that before the firſt *Punick* War they had not thought of the Sea: this is not to be underſtood in a ſtrict ſenſe; for the ſame Author makes mention of a Treaty between them and the *Carthaginians*, *An. U. C.* 245. in the time of the firſt Conſuls, which was two hundred and fifty years before the firſt *Punick* War, in which they engaged themſelves not to ſail beyond the North Promontory of *Carthage*, unleſs compelled by Neceſſity.

The Navigation of the *Romans* is regulated by particular Clauſes in that Treaty. In the year of *Rome* 402 there was another Treaty of Commerce made with the *Carthaginians*, in which the *Tyrians* and People of *Utica* were comprehended as Allies of the *Romans*. It appears by theſe Treaties, that the *Romans* had not only practiſed the Sea, but pyrated on it. The third Treaty between the then *Romans* and the *Carthaginians*, was made in the year of *Rome* 473. By this Treaty it appears that the *Romans* had very much neglected their maritime Affairs, for they ſtipulated with the *Carthaginians* to furniſh them with Ships both for Tranſport and War. In the year of *Rome* 416, ſeventy four years before the firſt *Carthaginian* War, the *Romans* had ſeiz'd upon the Fleet of the *Antiates*, now *Capo de Anzo*, conſiſting of twenty two Ships, among

S which

which there were ſix armed with *Roſtra,* with which the Conſul *Mænius* adorn'd the publick place of Oratory. Theſe are plain Proofs of the *Romans* having applied themſelves to the Sea, before the firſt *Carthaginian* War.

It was in vain for the *Romans* to think of carrying on the War in *Sicily* againſt the *Carthaginians,* without a naval Force; and perhaps nothing can give a greater Idea of the moſt invincible Courage and Induſtry of that People, than this firſt Eſſay of their naval Preparations; having built in the ſpace of ſixty Days from the time of cutting down the Timber a Fleet of an hundred *Quinquiremes* and twenty *Triremes,* upon a Model of one of the Enemy's Ships which chance had made them Maſters of. They had been us'd before to waſt over their Troops into *Sicily* in borrow'd open Veſſels. The Reader will find a very particular Account of this War in the firſt Book of *Polybius,* by which he may form likewiſe ſome Idea of the Veſſels of that time: For five years after the beginning of that War the *Romans* rigged out a Fleet, in which there were 140000 Men that bore arms. The Fleet conſiſted of three hundred and thirty Veſſels; in each Galley they had three hundred Rowers and an hundred and twenty Soldiers; for the number of Men being divided by the number of Ships gives four hundred and twenty four men a-piece.

The *Carthaginian* Fleet conſiſted of three hundred and fifty ſail, with 150000 fighting men aboard, which is more than four hundred and twenty eight men in every Ship. This ſhews that their Ships were very large. And who now (as *Polybius* ſaith) would contemplate the mighty Hazard to which thoſe two contending States were expoſed, and but hear the relation of the Preparation of ſuch Fleets and Armies without Aſtoniſhment, and taking part of the Peril with which they threatned each other. The Event was, that the *Roman* Fleet (although built by Shipwrights, and conducted by Pilots, both without Experience) defeated that of the *Carthaginians* *, both in the firſt and ſecond Battle; and had made the

* Olymp. 131. U. C. 498.

the *Romans* Masters at Sea, had it not been for their Losses by Shipwreck; by which, the first year of the War, their Fleet, consisting of three hundred and fifty four sail, was reduced to eighty. To repair this Loss they built a hundred and twenty Ships in three Months time, and put to Sea with a Fleet of three hundred sail, of which they lost again the half by Shipwreck. This Fleet they recruited with two hundred sail, whereof they lost ninety three in a Sea-fight the year afterwards. This was attended by another Loss: for the Consul *Junius* passing over into *Sicily* with a Reinforcement of an hundred and twenty Gallies, and more than eight hundred Ships of Burden, his Fleet was destroy'd by a furious Tempest. These Losses obliged the *Romans* to abandon the Sea to the *Carthaginians*, who by their Insolence and ravaging the *Italian* Coasts opposite to *Sicily*, forced the *Romans* again to try their Fortune at Sea with a Fleet of two hundred sail, under the Command of *Lutatius* the Consul, who obtain'd a compleat Victory over the *Carthaginians* in the year of *Rome* 511. After which these People were obliged to demand Peace, and give up to the *Romans* all their Possessions in *Sicily*. This Sea War cost the *Carthaginians* five hundred *Quinquiremes*, and the *Romans* seven hundred, including their Shipwrecks.

The *Roman* Shipwrecks were occasion'd undoubtedly by their Ships being bad Sea-boats, and themselves but indifferent Seamen. For mere personal Valour could not supply want of knowledge in building and working their Ships. Of which there cannot be a greater Indication than that of the *Rhodian* Ship, which passed thro' the whole *Roman* Fleet, backwards and forwards several times, carrying Intelligence to *Drepanum*. *Polybius* saith, that the *Rhodian* Captain relying on his Knowledge and the Lightness of his Vessel, passed in open day through all the Guards of the Enemy that awaited him; and in a kind of Mockery and Contempt of the Enemy, he would often lie upon his Oars, and then take a turn, and go quite round them, as if it were to provoke them to fight. This Ship by good luck fell into their Hands at last, and served as

a Model to build others by. One cannot help making this Obſervation, that the People of that time muſt have been either more faithful to their Country, or better governed than thoſe in our days; for if the *Roman* Government ſubſiſted now, they would have had renegade Seamen and Ship-wrights enough to have ſerved them on this occaſion.

A little before the time of this firſt *Carthaginian* War lived *Hieron* King of *Syracuſe*, a wiſe Prince skill'd in maritime Affairs, of whoſe naval Architecture we have given a former Inſtance.

Ten or twelve years afterwards the *Romans* were engaged in a new War againſt the *Illyrians*, Inhabitants of the Eaſtern ſide of the *Adriatick* Gulph, who under the Authority and Permiſſion of their Queen *Teuta* infeſted all the neighbouring Coaſts with their Pyracies. *Teuta* had the Inſolence to put to death one of the *Roman* Ambaſſadors; ſhe was obliged, by a vigorous and ſucceſsful War which the *Romans* made, to conſent to give up all the Sea Coaſt, except a very few places; to reduce her Fleet two unarmed Brigantines, and not to ſail beyond the City of *Liſſus*, now call'd *Aleſo* or *Aleſſia* in the Neighbourhood of *Dyrrachium*, *Durazzo* in *Albania*. It was the conſtant Method of the *Romans* to diſarm thoſe Nations whom they had vanquiſhed at Sea: for what other Security could they have, it being impoſſible to bridle their Power in that Element by Garriſons, as at Land.

The *Iſtrians* broke this Treaty, and the *Illyrians* put to Sea fifty Brigantines, in which they ſail'd beyond the *Liſſus* as far as the *Cyclades*; but they were vanquiſhed by the Conſul *Æmilius*.

The Iſland of *Sardinia*, and the Uneaſineſs of the *Carthaginians* under a great Sum that was exacted from them by the *Romans*, were the cauſes of a ſecond *Punick* War; in which the Fleets of both Nations ſeem'd to be leſs numerous than in the firſt. The *Romans*, according to their uſual Spirit, when their Affairs were in the utmoſt Extremity in *Italy* by the terrible Invaſion of *Hannibal*, *Olymp.* 140. *U. C.* 536. ordered *Scipio* to paſs with a Fleet

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to *Sicily*, and from thence to *Africk*. He with a Diligence, almost past Credibility, built, rigg'd and arm'd twenty *Quinquiremes*, and thirty *Quadriremes* in forty five Days, reckoning from the time of cutting down the Timber, a great part of which was green. The Victory he obtained over *Hannibal* in *Africk* put an end to that War. The *Carthaginians* beg'd and obtain'd Peace upon the very hard terms of having their Fleet reduc'd to ten Gallies, *Scipio* having burnt the rest before their eyes to the number of five hundred of all Rates. What a miserable Spectacle was this for a Nation that had been Mistress at Sea so long? By this Treaty they were not only restrain'd as to their Ships of force, but the very Bulk of their trading Vessels was regulated. It was remarkable in this second *Punick* War, that whilst *Hannibal* was victorious in *Italy* at Land, the *Romans* beat the *Carthaginians* at Sea.

The next Affair which the *Romans* had at Sea was with *Philip* King of *Macedon*, who after the Battle of *Cannæ* had entered into a Confederacy with *Hannibal*, of which the principal Article was, that he should invade *Italy* with two hundred sail of Ships. In the year of *Rome* 540, the *Prætor Lævinus* commanding the Fleet upon the Coast of *Brundusium* (now *Brundisi*) and *Calabria*, imbarked an Army aboard the Fleet, and forced *Philip* to raise the Sieges of * *Oricum* and of † *Apollonia*, obliged him to retire into *Macedonia* by Land, and to burn the greatest part of his Fleet, consisting of an hundred and twenty *Biremes*. The very same year the Cities of *Eubœa* were attack'd by three powerful Fleets, the *Roman*, that of *Attalus* King of *Pergamos*, consisting of eighty *Quinquiremes*, and that of the *Rhodians* of twenty *Cataphractæ*, that is, covered or close Ships. Twelve years afterwards *Philip* engaged near the Island of *Chio* the Fleet of *Attalus*, and that of the *Rhodians* consisting of sixty five Ships of War, besides some of the *Byzantines Philip's* Fleet consisted of fifty three cover'd

* Oricum *on the Coast of* Epirus, *built by the* Colchians.

† Apollonia, *a City of* Macedonia, *now called* Pollina.

ver'd Gallies, besides several open Ships, and an hundred and fifty Galliots and Ships called *Pristes*, from the Figure of a Whale on their Prow, as a Mark of their extraordinary Swiftness. *Philip* at
A.U.C. 556. last being beaten by the *Romans* under the Conduct of *Q. Flaminius*, obtain'd peace upon the hard condition of delivering all his cover'd Vessels to the *Romans*. They left him some small Vessels, and one Galley of a prodigious size, which was said to be of sixteen Ranks of Oars. This great Ship carried the Consul *Paulus Æmilius* to *Rome*, after he had vanquish'd *Perseus* the Son of *Philip*.

Antiochus, sirnamed the Great, at the Instigation of *Hannibal*, disputed with the *Romans* the Empire of the Sea with the same bad Success. He had an Admiral of great Experience, one *Polyxenidas*. The *Romans* had the advantage of the Battel by the Bulk of their Ships, and the Fleet of *Antiochus* in the Swiftness and Mobility of theirs, which served them in great stead in the Flight. *Polyxenidas* despised the Fabrick of the *Roman* Vessels, affirming them to be *inscite factas & immobiles*. The Battel was fought on the Coasts of *Ionia*. The *Rhodians* attacked a recruit of Vessels, which *Antiochus* was bringing from *Sicily*; but *Polixenidas* his Admiral, a very able Officer, surprized the *Rhodian* Fleet, together with a part of the *Roman* at the Island of *Samos*: there were hardly seven Vessels that escaped, twenty were taken and carried to *Ephesus*. *Æmilius Regillus* succeeded to *Livius* in the command of the *Roman* Fleet, and with eighty sail beat that of *Antiochus* under the command of *Hannibal* and *Polyxenidas*, consisting of an hundred covered Vessels. The *Romans* took thirty of them, and burnt or sunk the rest. The Defeat of his Army at land at the same time extinguished his Hopes of disputing with the *Romans* the command of the Sea. He was obliged to abandon all the *Asiatick* Coast between the Sea and Mount *Taurus*, to deliver all his Fleet to the *Romans*, except ten middle-siz'd Brigantines, with which he durst not sail beyond the Promontories of *Cilicia*.

In execution of this Treaty, fifty great Vessels were burnt by the command of the *Roman* Consul. His Son *Antiochus Eupator*, in

defiance of this Clause, began to augment his Fleet; but the *Roman* Senate ordered his supernumerary Vessels to be burnt.

Hannibal apprehending least *Antiochus*, after his Defeat, should be obliged to deliver him up to the *Romans*, went into the Service of *Prusias*, King of [a] *Bithynia*, and commanded his Fleet against *Eumenes*, King of *Pergamos* [b], an Ally of the *Romans*. Being fruitful in Stratagems, he threw into the Enemy's Ships earthen Bottles filled with Serpents, which put the Crew in Disorder, and made them fly. This was the same *Prusias*, who join'd with the *Rhodians* in a War against the *Byzantines*, and stop'd them from levying their Toll upon the Trade into the *Euxine* Sea.

The *Ætolians* were the next that by their Insolence drew the Arms of the *Romans* against them. The Consul *Fulvius* took their Capital City *Ambracia*, and reduced them to beg Peace, which they obtain'd by the Intercession of the *Athenians* and *Rhodians*. The *Istrians* who had join'd with them were Fellow-Sufferers. After this the *Romans* were Masters of all the Isles from the Coast of *Epirus* [c] to the Cape of *Malleum* [d].

Nabis, who had possessed himself of the Coast near to *Sparta*, and there pyrated outrageously upon all the *Peloponesian* Trade, was the next that felt the Power of the *Roman* Arms. The Consul attack'd him with a Fleet of forty sail, eighteen close Gallies of *Rhodes*, and ten others of King *Eumenes*, obliged him to deliver up his Fleet, and restore the Ships he had taken to the Proprietors, reserving only to himself two Brigantines. Notwithstanding which he rigged out another small Fleet, and the *Achæans* ingaged him with theirs, not waiting for that of the *Romans*. *Philopœmen*, a great Captain at land, but a bad Admiral, took the Command upon him, and was beaten by *Nabis*. He made afterwards a Truce with the People of *Rome*, but before it expired he was kill'd by the *Ætolians*. After which *Sparta* entered into the Alliance of the *Achæans*.

The

[a] *A Province of* Natolia

[b] *In the Lesser* Mysia. *There was a famous Library at* Pergamos.

[c] Epirus *lies between* Macedonia *and the* Ionian *Sea; it is now called* Canina.

[d] *Now called* Cabo Malio *in the* Morea.

The *Rhodians*, tho' Friends and Allies of the People of *Rome*, were not perfectly well pleased with this great Superiority of their maritime Power. They would fain have made themselves Arbitrators between the *Romans* and King *Perseus*. They spoke in a very high style to the Senate, and complain'd of a great many Grievances; but chang'd their Language much after the Defeat of *Perseus*, laying the blame of this Proceeding on some particular Citizens. No body could be surpriz'd that so wise a People should have such Sentiments.

[c] *Perseus*, after having in vain sollicited his Neighbours for aid, sent Envoys to *Carthage*, to kindle afresh their antient Hatred against the *Romans*: He had a numerous Fleet, and some Ships of great Bulk. The *Romans* during this time had neglected a little their Sea Affairs, and their Fleet was ill man'd; but a Victory by Land over *Perseus* soon ended the Quarrel; and he himself being taken Prisoner in the Island of *Samothracia*, whither he had fled, was carried to *Rome*. It was on this occasion that *Paulus Æmilius* entered the *Tyber* in the above-mentioned royal Ship of *Perseus* of sixteen Ranks of Oars. *Gentius* King of the *Illyrians* had the same fate.

The *Romans* were surprised to see two captive Kings, and the successful end of a War, of which they knew not the beginning. But as a mark that the *Romans* considered their maritime Power more in relation to War than their Trade, they made a present of an hundred and twenty Brigantines of the Fleet of *Gentius* to the People of *Apollonia*, *Corcyra* (now *Corfu*) and *Dyrrachium* (*Durazzo*.)

Polybius tells us, that from the Defeat of *Philip* King of *Macedon* till a considerable time after that of *Perseus*, the *Romans* had absolutely neglected the Coast of *Illyria*.

All this while the little *Asiatick* Princes carried on maritime Wars against one another.

During

[c] Olymp. 150. U. C. 575.

During the *Roman* Wars in *Macedonia* the *Carthaginians* were preparing to ſhake off their Yoke. The *Romans* were inform'd of their ſecretly laying up naval Stores. Ambaſſadors were ſent to *Carthage*, under pretence of terminating the Difference between the *Carthaginians* and *Maſaniſſa*. Theſe Ambaſſadors were like to have been torn to pieces by the populace, but were convinc'd by ocular Demonſtration of the naval Preparations of the *Carthaginians*. Whereupon the *Romans* quickly fitted out a Fleet againſt them of fifty *Quinquiremes*, and a great many other Ships. The Conſul *Manlius* commanded the Land Army. The *Carthaginians*, ſurprized at ſo ſudden an Attack, followed the Example of *Utica*, which had ſubmitted to the *Romans*; who began by burning the *Carthaginian* Fleet; and, after having ſeiz'd a great number of Hoſtages, acquainted them with their reſolution of deſtroying their City, and ſettling them on the Continent five Leagues from the Sea. Upon hearing this they were ſeiz'd with Fury, and reſolved to ſuffer the laſt Extremity rather than ſubmit to ſuch cruel Terms. They were beſieg'd in form by Sea and Land. After *Scipio* had taken away the uſe of their Harbour, they dug a new one at another Quarter of their City, through which they ſent a Fleet of an hundred and twenty Ships of War, which attack'd the *Roman* Fleet, and burnt a part of it: but after all their vain Efforts, the City of *Carthage* was taken by the *Romans* ſeven hundred years from its Foundation, and ſix hundred and eight after that of *Rome*. The *Romans* burnt the remainder of this laſt Fleet, which is another mark of their ſmall Attachment for the Sea. *Carthage* at that time had ſeven hundred thouſand Inhabitants, as we ſaid before: and nothing could be a greater Sign of their Power and Riches, than that laſt Effort they made for their Preſervation. But ſucceeding times plainly ſhewed the *Romans* the Advantage of a City ſituated on that place. For, not to mention the Attempt of the *Gracchi* to rebuild *Carthage*[f], it was at laſt finiſh'd by *Auguſtus*, and peopled

[f] *Old* Carthage *ſtood about twelve Miles from* Tunis *towards the Sea. There is a ſmall Village there now.*

pled with *Romans* and *Africans,* two hundred years from the time of its Ruin, according to a Project left by *Julius Cæsar.*

After the destruction of *Carthage*, the *Romans* began to have a regular Commerce in *Africa.* It consisted chiefly in the Sale of Slaves carried to the Island of *Delos,* which by the happy Circumstance of being reckoned a sacred place, grew to be a free Port, where Nations warring with one another resorted with their Goods, and traded as in a neutral Country.

The Destruction of *Carthage* was soon follow'd by that of *Corinth* [g], a City famous for Trade and Navigation; it had two Harbours, that of *Senchres* on the *Ægean* Sea towards the East, on the Western side the Port of *Lechæum:* it was called by *Philip* of *Macedon* the *Chain of* Greece. The *Corinthians* were said to be Inventors of *Triremes,* and of Weights and Measures; tho' both their Sea-craft and Arithmetick came originally from the *Phœnicians.* But at last their Impudence in violating the Right of Nations, and ill treating the *Roman* Deputies, drew the Vengeance of that People upon them: and the Consul *Mummius,* after having beaten *A.U.C.* 607. their Army, took, pillag'd, and burnt their City; which was af- *A.U.C.* 710. terwards rebuilt by *Julius Cæsar.*

The Destruction of those two famous trading Cities, *Carthage* and *Corinth,* fill'd the Seas with Pyrates: their Inhabitants having no certain abode, nor any other way of subsisting. The *Romans* at that time were engag'd in a dangerous War against *Mithridates,* who was powerful at Sea, and used the Assistance of the Pyrates to reduce the *Roman* naval Power. *Antonius* attack'd the Pyrates of *Crete,* and by his too great Presumption was defeated, upon the Sense of which affront he died with Grief. This Loss was repair'd by Q. *Metellus* Proconsul, who subdued all the Island, the Inhabitants of which had been free from the time of *Minos.* The Pyrates of the neighbouring Coasts, *Pamphylia, Cilicia,* and *Lycia* [h] had the Courage to engage the *Roman* Fleet with their small Vessels,

g Corinth *stood upon the Isthmus which joins* Peloponesus *to the Continent, between the* Sinus Corinthiacus (Golfo di Lepan o) *and the* Sinus Saronicus (Golfo di Egina) *and so most conveniently for Trade.*

h *Provinces on the South side of* Asia Minor.

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ſels, but were routed, and their little Fortifications deſtroy'd. The *Romans*, as they were grown formidable, were likewiſe become odious to the Inhabitants of *Aſia*, *Greece* and *Ægypt*, which made thoſe Nations extremely reſpectful to the orders of *Mithridates*. The *Rhodians* alone kept their Faith with the *Romans*: Their Iſland was a Retreat to ſuch as eſcap'd from the Barbarities which were practis'd by that Prince at Sea; who for that reaſon attack'd the *Rhodians* with a mighty Fleet; but his deſign was render'd abortive by the ſuperior Art and Conduct of the *Rhodians*. *Lucullus*, under the command of *Sylla*, having with ſome difficulty collected a great Fleet, ſhut up *Mithridates* in *Pitany*, a City of *Troas*, whilſt *Fimbria* beſieged him by Land. *Fimbria* was a Perſon of ſo bad a Character, that *Lucullus* would not enter into any Aſſociation with him; but acting by himſelf, twice beat the Fleet of *Mithridates*. Yet I think there lies a great Suſpicion upon *Archelaus* the King's Admiral, who deliver'd up ſeventy Ships, near a third part of his whole Fleet, and perſuaded his Maſter to conſent to it, and afterwards took ſervice with his Enemies. *Mithridates* eſcap'd at that time, and revenged himſelf upon *Cotta*, Collegue of *Lucullus*. After the Death of *Sylla*, *Cotta* was beaten by Sea and Land (having loſt ſixty Ships) and afterwards beſieged in *Chalcedonia*. *Lucullus* raiſed the Siege, and ſhut up *Mithridates* himſelf in his Camp before *Cyzicus*[k], a Town of *Myſia*, which that Prince had beſieged. *Mithridates* choſe the Sea as the ſecureſt Retreat, but loſt ſixty Men of War by a violent Storm, as he was ſailing into the *Euxine* by *Byzantium*; he eſcaped narrowly himſelf aboard a ſmall Privateer, who carried him back to his Kingdom. *Lucullus* purſued the reſt of the Fleet, ſunk thirty Men of War on the Coaſts of *Troas* and *Lemnos*; and at laſt made himſelf Maſter at Sea; having with ſingular Modeſty and Frugality refus'd 3000 Talents, or 581250*l.* which the Senate had ordered him to refit his Fleet. He brought to *Italy* an hundred and ten roſtrated Galleys of the Fleet of *Mithridates*, and by his Behaviour in that War, and all the future part

 of

i *About* Olymp. 177. U. C. 685.

k Cyzicus *is ſituated on the* Propontis.

of his Life, has left one of the greatest Characters of Antiquity.

All this while the Pyrates grew very numerous, and form'd a sort of Republick, which grew to such a degree of Power and Insolence, that a Merchant Ship durst not put to Sea. The ordinary Convoys of Provisions for *Rome* were intercepted, and the City was like to be famished. The Towns and Temples on the Sea Coasts of *Italy* were pillaged, or put under Contribution. The Pyrates appeared with great Fleets even at the Mouth of the *Tiber*. They had of all sorts above a thousand Ships, of which they formed regular Fleets. They had their several Ports and Magazines, but *Cilicia* was their principal Resort, from whence they fitted out their Squadrons as occasion requir'd. So pressing an Evil demanded a powerful and speedy Remedy. *Pompey* was entrusted with a command greater than had been given before to any *Roman* Citizen, and which, according to the reasonable care of Liberty in that time, and afterwards lost, gave much Jealousy. It was no less than the command of all the Seas from the Straits of *Gibraltar* to the *Thracian Bosphorus*, with the bordering Coast fifty Miles up the Country. He had a Fleet equip'd of *Romans* and their Allies, consisting of five hundred sail. With this Strength he defeated the Navy of the Pyrates on the Coast of *Cilicia*, and by a Conduct peculiar to himself, put a happy end to the War; of which I think the most prudent part was his Moderation and Indulgence, not reducing them to desperation; but after having forbid them the use of the Sea, appointed them fix'd Habitations and Lands to cultivate in the inland Countries; which kind usage made them afterwards the most faithful Subjects of the people of *Rome*. The successful Management of this War, which he finish'd in three Months[1], makes perhaps the most glorious part of the Life of *Pompey*, and exceeds (in my Opinion) the greatest Actions ever perform'd by *Cæsar*.

The

1 Olymp. 178. U. C. 687.

The Navigation of the *Mediterranean* was now free, but the *Romans* enjoyed the Fruits of this Commerce very little, for their Trade was War. Another Scene of Action opened to the *Romans*; who, after the Conquest of *Gaul*, sent Shipping into the Western Ocean. After *Cæsar* had subdued the *Belgæ*, the *Venetæ*, a People inhabiting the Country about *Vannes* in *Britany*, whom *Strabo* makes of the same Nation with the *Belgæ*, foreseeing that *Cæsar* intended to invade *Britain*, with which they had great Commerce, resolved to divert him from his purpose by creating him some Disturbance in *Gaul*. The *Venetæ* were very powerful at Sea, and a maritime Force was very necessary to attack them: *Cæsar* therefore gave order to build his Gallies on the *Loir*, and the Rivers that fall into it. He made *Decimus Brutus* Admiral of the Navy, with orders to sail towards the *Venetæ* with what speed he could, himself in the mean time marching towards them with his Land Forces. He tells us in his Commentaries, that the Tides were so much their Friends, and their Ships so accommodated to the nature of those Seas, that they could easily remove themselves from one Town to another, and so deluded him the greatest part of the Summer; they made use of Iron Chains instead of Cables, and raw Hides instead of Sails. When his Fleet arrived, there was but small hope of success against two hundred and twenty sail of Ships, of such height and strength that his Vessels could do no execution upon them: To supply those Inconveniencies he made use of this Device: he ordered his Men to arm long Poles with sharp Hooks or Scythes, wherewith they took hold of the Tackling which held the Main-yard to the Mast of their Enemies Ship, then rowing their own Ship they cut the Tackling, and brought the Main-yard by the board; thus the *Venetæ* lost the use of their Shipping, and the Contest fell within the compass of Valour, in which the *Romans* were superior; the *Venetæ* having lost the greatest part of their Fleet and their best Men in this Battel, were not able to make any farther resistance.

This Obſtacle being removed, *Cæſar* invaded *Britain* [m] with eighty Tranſports, on board of which he put two Legions and the Officers of ſome Gallies. He had likewiſe prepared eighteen Tranſports for his Cavalry. He obſerves that the Figure and Uſe of the Gallies appeared ſtrange to the *Britons*.

To ſay no more of that Expedition, the ill Succeſs of which was in great meaſure owing to the Storms that diſordered his Fleet; the bad diſpoſition he made in landing his Men, ſhews him not only to be much inferior to *Pompey* as a Sea Officer, but to have had little or no Skill in that Element.

He invaded *Great Britain* a ſecond time, with a Fleet of eight hundred Ships, on board of which there were five Legions and two thouſand Horſe.

Before thoſe times the *Spaniards* and *Phœnicians* had great Eſtabliſhments in *Spain*; they traded to the Weſtern part of *England*, and the other *Britiſh* Iſles, comprehended by the Ancients under the general Name of *Caſſiterides*, from the Tin with which they abounded. The Commerce of Lead and Tin was ſo lucrative, that they kept it a great Secret. *Strabo* relates that a *Phœnician* being purſued by a *Roman* Veſſel, choſe to daſh his Ship againſt the Rocks, to draw the *Roman* after him, rather than diſcover his courſe. *Publius Craſſus* afterwards made that Voyage, and publiſhed his Journal: Both *Diodorus Siculus* [n] and *Tacitus* [o] acquaint us that Trade had civilized the Inhabitants of *Cornwall* more than thoſe of the other parts of *Great Britain*. [p] *Strabo* relates, that the Commodities of *England* were Corn, Cattle, Gold, Silver, Iron, Skins, Leather, and hunting Dogs; and ſpeaking of the *Caſſiterides* he adds [q] Tin and Lead. [r] *Tacitus* joins Pearls. *Cæſar* mentions neither Gold, Silver, nor Pearls: [s] *Cicero* affirms in expreſs terms, from the Information of the Letters of his Brother *Quintus*, that there was neither Gold nor Silver in *England*, which ſhews that the *Engliſh* Metals were not then known

[m] *On the* 55th *Year current*, Auguſt 26. *in the Afternoon, as Dr.* Haly *has demonſtrated.*
[n] Diodorus Siculus lib. 4.
[o] Tacitus in vita Agricolæ lib. 24.
[p] Strabo lib. 4. [q] Ibid. lib. 3.
[r] Tacitus vita Agricolæ cap. 12.
[s] Cicero Epiſt. fam. lib. 7. ad Trebat. Epiſt. ad Atticum lib. 4. Epiſt. 17 & 116.

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known to the *Romans*, but were so very soon afterwards; for *Strabo*, who talks of their Tin and Lead Trade, lived under *Augustus* and *Tiberius*. There was either no Copper, or not a sufficient Quantity in *England* at that time, because they were furnished with that Metal from abroad[t]. Lead and Tin were used in the time of the *Trojan* War, and brought perhaps from the *Cassiterides* by the *Phœnicians*, [u] *Herodotus* affirms that the *Greeks* had their Tin from thence. As for *English* Dogs they were brought to *Rome* before *Cæsar*'s Expedition: they are mentioned by *Gratian* in his *Cynogeticon*, and by *Strabo* as of common use. It has been doubted whether the *Britons* at that time had any other Shipping, except their small Boats covered with Leather; but since *Cæsar* tells us that they often assisted the *Gauls*, and particularly the *Venetæ*, we must imagine they had larger Vessels built of solid Wood; besides they must needs imitate the Fabrick of other Ships, which they saw in their own or foreign Ports every day.

The chief trading City among the *Gauls* was *Massilia* (now *Marseills*) founded and peopled by the *Phoceans*, an *Asiatick* Nation addicted to Commerce, whose Manners they retained; they civilized the *Gauls*, who were their Neighbours; but their Riches and Grandeur drew upon them the Envy and Hatred of some Nations among them, as the *Salyans* and *Ligurians*. They assisted the People of *Rome* (who courted their Favour) on many occasions. There are two Voyages of the *Massilians* recorded, one of *Euthemenes* beyond the Line, and another of *Pythias* towards the North as far as *Iceland*, which were treated, because of the Strangeness of their Accounts, as fabulous by the Ancients; but time has confirm'd the possibility and the truth of them. *Marseilles* had great Obligations to *Pompey*, and join'd with him against *Cæsar*, who took their City after the Loss of two Sea Battles which they had sustained in their own Defence. There were other trading Towns in *Gaul* less famous than *Marseilles*, of which the Reader may see an account in *Monsieur Huet*.

Spain

t Cæsar. lib. 5. cap. 12. de Bell. Gall. Strabo lib. 3.

u Herod. lib. 3. cap. 15.

Spain (at least the Southern parts of it) was always much more famous for Traffick than *Gaul.* The *Phœnicians* frequented it, especially that part which lies towards the Straits of *Gibraltar* at the mouth of the *Bætis,* celebrated by ancient Authors under the name of *Tharsis.* See Ezek. xxvii. 12.

The Expedition and Conquests of *Hercules* are ascrib'd to these Parts of *Spain*; and one *Colæus* of *Samos* is said to have been driven thither by fortune about the forty fifth *Olympiad,* where he made a very rich booty; tho' *Sostrates,* a certain *Greek* from the Island of *Ægina,* had been there before him. The *Phoceans,* driven from *Asia* by the *Persians,* came into these Countries about the sixty eighth Olympiad. The *Phœnicians* were enticed thither by the Silver Mines, called by the Ancients the Mountains of Silver: Whereof they found such Quantities, that they forged their Anchors and other Utensils of their Ships of that Metal. I have mentioned the *Spanish* Mines in a former Dissertation. Besides Metals, *Spain* furnished several other rich Commodities, as Wine, Wool, Stuffs, linen Cloth, (of which they were said to be the Inventors) Honey, Wax, Borax, Vermilion, fossile Salt, pickled Fish, and a sort of Rush called *Spartum,* useful for Cordage and other parts of Shipping, from whence *Cartagena* was called *Spartaria.* But Oil must not have been plentiful, even in *Andalusia,* in those times, since [x] *Aristotle* tells us that they purchased it of the *Phœnicians* with Bars of Silver. The Inhabitants of the *Baleares* made use of a factitious Oil, [y] and the *Portuguese* instead of it used Butter. In the time of *Augustus* and *Tiberius* the Southern Coasts of *Spain* sent great Fleets of Merchantmen to *Italy.*

Germany was very little known before the time of *Cæsar*; and he knew only that part of it which lies on the Banks of the *Rhine.* In the Wars that were carry'd on under *Augustus,* that Country came to be more frequented, for his Fleets sail'd round *Germany* beyond the *Cimbrick Chersonesus* (now *Jutland.*)

When

x Aristot. lib. de mirabilibus.

y Strabo lib. 9.

When [z]*Strabo* speaks of *Germany*, between the *Elb* and the *Baltick*, as an unknown Country, he must be understood to mean the inland places and not the Coast. [a]*Tacitus* says that the *Germans* were *Autochthones*, Originals of their own Country, and that they had no Communication with any strange Nation; that the Transmigrations and peopling of Countries were made in former times by Sea, and not by Land; nevertheless there were several Inroads of foreign Nations into *Germany*, mentioned by antient Authors, particularly a [b]Voyage of the *Ægyptians* under the Conduct of *Osiris* up the *Danube*; from them the *Suevi*[c] had their Worship of *Isis*, and all the *Germans* that of *Teuth*, from whom they took the name of *Teutons*. According to antient Fables the *Argonauts* at their return from *Colchis* sail'd up the *Danube*, and from thence passed into the *Adriatick*, carrying their Ship *Argo* upon their Shoulders: a Mark of great Ignorance in Geography among the Writers of that time. The manner of living of the *Nomades*, changing their Habitations, made them incapable of Trade. The Inhabitants on the Banks of the *Rhine* knew the use of Wine and Money, and taught both to their Neighbours. The Amber of the Northern Coasts of *Germany* brought a considerable Profit, that commodity being in great request at *Rome*. [d]*Scandinavia* had Harbours both upon the *Baltick* and upon the Ocean: the Inhabitants built Vessels of a particular frame, with two Prows, and without sails, like those of some other people upon the *Euxine* Sea. They exchanged their dry Fish and other Merchandize with those of the *Germans*; their Pitch and Copper brought them likewise considerable Profit. All the People of that Northern Tract Eastward of *Germany*, and a part of *Germany* itself, were very indistinctly known by the Ancients under the Name of *Scythians*, of whose Commerce there is little mention; and Monsieur *Huet* speaks rather of the modern than ancient state of the Trade of *Muscovy* and *Poland*.

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[z] Strabo lib. 7. [a] Tacitus de mor. Germ. [b] Diodorus Siculus lib. 1. [c] *Inhabiting the Country now* Schwaben, *the Capital is* Augsburg. [d] Scandinavia *was that Tract of Land which contains now the greatest part of* Norway *and* Sweden.

The *Euxine* Sea is conveniently ſituated for Trade by the communication it has both with *Aſia* and *Europe*, and the great navigable Rivers that empty themſelves into it. The *Danube*, the *Boryſthenes*, the *Tanais*, open it to the *European* Nations on the Weſt and North, and on the Eaſtern Coaſt an Infinity of little Rivers from Mount *Taurus*, and its branches, brought down the Merchandiſe of *Aſia*, ſo that it furniſhed many rich Commodities to the Countries which traded towards it, ſuch as Gold and other Metals, Corn, Leather, Linen, Honey, Wax, Cattle, Furs, Drugs, as Rhubarb and Liquoriſh, Nuts, Timber for Ship-building, and ſome pretious Stones. The *Greeks* believed themſelves to be the firſt who had navigated that Sea, from the Story of the *Argonauts*; but the *Ægyptians* had been there before them; for *Seſoſtris* King of *Ægypt*, following the ſteps of his Predeceſſors, marched into that Country, and was defeated at *Colchis*. The *Greeks* eſtabliſh'd a great many Colonies on the Coaſt of the *Euxine*, and in honour of Commerce erected a Temple and Statue to *Mercury*, which *Arrian*[e] found at *Trapezus* or *Trebizond*. He mentions likewiſe the Port of the *Iſiacks*, ſo called from *Iſis* the Goddeſs of the *Ægyptians*. The Fiſhery of the *Euxine* Sea conſiſting in Sturgeon, Tunyfiſh, Cavear, which were exported to *Italy* and *Greece*, was ſo great that the Cuſtoms of them maintain'd the old *Andronicus Palæologus* and his Houſhold. The old *Byzantium* (now *Conſtantinople*) raiſed a great Toll upon the Trade that paſſed into that Sea.

The *Ægyptians* ſailed to the *Cimmerian Boſphorus*[f], *Palus Mæotis*[g], and the *Taurick Cherſoneſus*[h], unknown to the Ancients on the North ſide; for in [i]*Pliny*'s time they did not know whether the *Palus Mæotis* were a Gulph of the Ocean. The *Phœnicians* traded to it, as appears by *Lucian*. The Fable of *Iphigenia* and the famous Exploits of *Pylades* and *Oreſtes*, demonſtrate that there was a correſpondence between the antient *Greeks* and *Scythians* in that Country, where they afterwards eſtabliſhed Colonies. *Theodoſia* an antient

e Arrian. Per'pl.

f *The* Cimmerian Boſphorus *joins the* Euxine *and the* Palus Mæotis.

g Palus Mæotis, *now called* Mare delle Zabache, *from a ſort of Fiſh*.

h Taurick Cherſoneſus, *between the* Euxine *and* Palus Mæotis.

i Plin. lib. 2. cap. 69.

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tient Colony of the *Milesians*, at the Entry of the *Cimmerian Bosphorus*, was an Harbour capable of an hundred Vessels, a Place of much Commerce, almost deserted in the time of the Emperor *Adrian*, afterward re-established and possessed by the *Genoese*, under the name of *Casa*, who carried on a great Trade there under the *Grecian* Emperors, till it was taken by the *Turks*. *Tanais* (now *Asof*) was built by the *Greeks*. [k] *Olbia*, *Borysthenis*, *Panticapæum* capable to hold an hundred Vessels, *Capi*, *Phanagoria* and *Harmonassa*, are all Greek Colonies, and [l] *Chersonesus*, according to [m] *Pomponius Mela*, built by *Diana*. The Merchandise of the *Taurick Chersonesus* were Corn, Furrs, Butter, Horses, which the *Tartars* at this Day exchange with the *Muscovites* for other Commodities. *Arrian* in his *Periplus* of the *Euxine* has given us a List of the Ports of that Sea, which is but shallow, and does not admit of Ships of great Burthen; the *Indian* Goods were commonly brought hither by the *Caspian* Sea, into which they passed by the River *Oxus*. The *Tartars* who used to bring their Spices formerly to *Casa*, after the *Genoese* were beaten out of that Town, from the memory of so gainful a Trade, have sometimes sent the same Commodities as far as *Genoa*, in Ships from *Casa*. Their Predecessors, the [n] *Scythian Nomades*, Inhabitants of the Country beyond the *Palus Mæotis*, had no Commerce nor certain Abode, neither Corn nor Tillage, but lived on Milk and Horse Flesh.

Before we speak of the Commerce of *Italy* in the time of *Augustus*, the Reader must understand that the *Tyrrhenians*, even before the Reign of *Minos*, had settled themselves in *Italy*; they gave their name to the *Tyrrhenian* Sea; the Seat of their Empire was the Port of [o] *Luna*: the *Tarentines*, *Spinetes*, and *Liburnians* were likewise famous for their Navigation on those Seas. The *Romans* made war upon the *Tarentines*, and obliged them by Treaty not to sail beyond the Cape of [p] *Lacinia*. *Cornelius Valerius*, *Duumvir* of the Sea, confiding in the faith of that Treaty, approached *Tarentum* with his

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[k] *There were three* Olbias, *one in* Gallia Narbonensis, *a second in* Sardinia, *and the third here mentioned.* [l] *It was called* Chersonesus Emporium. [m] Pomponius Mela, lib. 1. cap. 2. [n] Ammian. Marcel. lib 3. cap. 2. [o] Luna, *now* l'Erici *in* Tuscany. [p] *The Cape of* Lacinia *and that of* Salentum, *inclose the* Sinus Tarentinus (Golfo di Taranta.)

his Fleet, which the *Tarentines* plundered, killing their Commander, and so arm'd the *Romans* against them, by whom they were subdued. The *Spinetæ*, as we said before, were descended from the *Pelasgi*, and settled at the Mouth of the River *Po*, which was called from them *Spinetick*. Thus the three Seas of *Italy*, the *Inferior* towards the South-East, the *Ionian* towards the South, and the *Adriatick* on the North-East side, were anciently commanded by these three different Nations: the first by the *Tyrrhenians*, the second by the *Tarentines*, and the third by the *Spinetæ*. The *Liburnians*, who lived on the opposite Coast, that of *Illyria*, were great Navigators, and addicted to Pyracy; they possessed themselves of several Islands in the *Adriatick*, were the Inventors of a light sort of Vessels called *Liburni*, which came to be much in use in the time of *Augustus*. All those Nations were severally subdued by the *Romans*, who for a long time, tho' they were possessed of their Ports, did not profit much by Trade. The Books of *Varro* concerning Navigation are lost, which no doubt would have given us great light in those matters. The *Romans* tho' they had no great Genius for Trade, yet were not entirely neglectful of it. The Establishment of the *Præfecti Annonæ* was very ancient, their Business was to supply the City with Corn, which they transported at first from *Sicily* and *Sardinia*, and afterwards from *Africa*; under the first Emperors from *Ægypt*; and in the Declension of the Empire from *Marseilles* and *Gaul*. In the year of *Rome* 259 there was a College of Merchants instituted, called the College of *Mercurials*, from *Mercury* the God of Commerce. We do not read of any great Improvements made in Commerce by that Society: The destruction of *Carthage* and *Corinth* did not increase the Trade of *Italy* so much as one would have imagined; but when those two great Cities were rebuilt, *Augustus* apply'd himself more seriously to Affairs of Trade and Navigation; he sent large Squadrons into the Ocean beyond the *Cimbrick* Promontory on the Coast of *Africk* towards the *Line*; to the *Palus Mæotis* and the *Arabick* Gulph or the *Red Sea*. The *African* Trade was manag'd at

Utica,

Utica. There are many Laws in the *Digest*, which shew that the *Romans* apply'd themselves to Trade. These related to priviledges, as exemption from municipal Offices annext to the Proprietors of Ships of such burthens, employed in the bringing home of Grain. Several Citizens by a fraudulent fulfilling of the Condition endeavoured to get the Benefit of the Priviledge, without answering the Intention of the Law, which fraudulent practices were provided against by new Laws: The Construction of Ships was forbidden to Senators, by a Law made by *Claudius*, Tribune of the people, in the time of the second *Punick* War, and re-enacted by the *Julian* Law of Concussions.

During the Triumvirate of *Octavius*, *Antony*, and *Lepidus*, young *Pompey* built a Fleet of large Ships, and good Sailors, commanded by experienced Captains, endeavouring, after the example of his Father, to pursue his Fortune at Sea; and encouraged by some Victories his Ships had obtained over those of *Cæsar*, he called himself the Son of *Neptune*, and wore a sea-green Habit: He was defeated in a Sea Battel by *Agrippa*, who commanded *Cæsar*'s Fleet. This Engagement was on the Coasts of *Sicily*, with three hundred Ships on each side. *Agrippa* was an expert Sea Officer; but altho' his Master *Octavius Cæsar* had no Genius or Inclination for these Expeditions, yet he honour'd his Admiral *Agrippa* with a naval Crown.

At last the Battle of [q] *Actium*, between *Antony* and *Cæsar*, gave a decisive stroke in the Command of the Sea: The different accounts that are given of the Numbers of Ships on both sides by several Authors, are reconcileable, by supposing that some spoke of the men of war only, and others added the Transports. If *Plutarch*'s Account be true, *Antony*'s Ships must not have been of very great bulk; for there were two and twenty thousand Soldiers on board a Fleet of perhaps four hundred sail, since three hundred were taken in the Battle. *Cleopatra* fled with sixty, and *Antony* in one *Quinqueremis*: according to this Account there must not have been *U. C.* 723. *Sept.* 2.

q Actium *is now called* Capo Figalo, *at the Entry of the* Sinus Ambracius *or* Golfo di Larta.

been above fifty five fighting Men on board every Ship one with another; this Victory was obtain'd by the advantage of the Ships called *Liburni*, which for that reason came afterwards to be of common use. *Augustus Cæsar*, to establish himself in the Dominion of the Seas, rigged out a powerful Navy to clear it of the Pirates of *Malta, Corfu*, and the *Liburnians*; he appointed two Stations for his Fleets, which were constantly equipp'd, one at the Cape of *Misenum*, in the *Tyrrhenian* Sea, and the other at *Ravenna* on the *Adriatick* Gulf; the first had the command of all the Sea westward, and the second of the Eastern, as far as the *Palus Mæotis*. *Ravenna* continued a large and capacious Harbour for a considerable time but at last the Sea left it, and it was choak'd up with slime and sand.

The *Romans* were now Masters of all the Trade of the world, but they were more employed in extending their Dominions than cultivating their Commerce. It is certain, whatever *Strabo* may alledge to the contrary, that the Ancients coasted only in their Navigations, seldom taking the open Sea.

Pliny tells us that the *Romans* steer'd the same Course to the *East-Indies*, which the Fleet of *Alexander* did, and describes it exactly from *Alexandria* to the *Indies*; he says, the desire of gain had made the Merchants steer shorter and less dangerous Courses sometimes, by taking the open Sea, by sailing from one Cape to another, which was both a safer and shorter Course. What he says concerning the Circumnavigation of *Africa*, from the Straits of *Gibraltar* to the *Red-Sea* is very remarkable, and puts the matter of fact beyond doubt. This he proves from the Wrecks of Vessels, which had sail'd from the Coast of *Spain*, the broken pieces whereof were found in the *Red-Sea*. He speaks of *Hanno's* Journal of the same Voyage, as a thing certain; and adds upon the Credit of *Cornelius Nepos*, a faithful Historian, that one *Eudoxius* flying from *Ptolomy Lathyrus*, King of *Ægypt*, embark'd on the *Red-Sea*, and landed at *Cadiz*.

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ɩ Plin. lib. 6. cap. 23. ſ Lib. 2. cap. 67.

The *Romans* improv'd their Navigation by their Commerce with Nations more skilfull in those matters than themselves. Mr. *Huet* thinks that the custom they had of giving the colour of the Sea to the Hulks, Sails and Mariners of their Spy-boats to keep them from being discover'd, came from the *Veneti*, a people of *Vannes* in *Britany*, and this upon the Authority of *Vegetius*, and because of the *Latin* name of that colour *Venetus*. That the *Romans* cultivated Navigation chiefly with regard to War, is plain from [u]all their History. The Statue of *Victory* set up in the Port of *Ostia*, and the Medals of *Marcius Censorinus*, *An. U. C.* 630. stamp'd on the Reverse with two Ships, and a Victory, are a plain proof of it. Their Medals struck upon occasion of sending out Fleets of Victuallers, had this Legend, *ad coemendum Frumentum S. C.* so in the time of the Emperors *Annona Aug. Ceres Aug.*

Nothing advanc'd the trade of the people of *Rome* so much as the Reduction of *Ægypt* into the form of a Province by *Augustus*. *A. U. C.* 725 *Rome* drew from *Ægypt* immense Riches: first it was a Granary for their Provisions of Corn, which by a happy fertility they were able to furnish to other Countries, ev'n in Years of Famine. This Commerce of Grain was constant and regular to *Rome* under the Emperors, and afterwards to *Constantinople*, where it continued even to the time of the Sultans. The Sea-ports of *Ægypt* were *Pelusium* (now *Damiata*) toward the East, and *Alexandria* toward the West. The fertility of the Soil in grain, and its being not proper for Vines, put the *Ægyptians* upon drinking Ale, of which they were the Inventors; but they afterwards planted Vines, and made excellent Wine, particularly the *Morean* celebrated by [x]*Virgil*, *Horace* and *Strabo*. The victualing Fleets sent to *Ægypt* were call'd by the *Romans Sacra Embole*, *Fœlix Embole*. Besides the Fertility, the Scituation render'd *Ægypt* a central place for the Commerce of *Arabia*, *India*, *Æthiopia*, *Syria*, and for all the Coasts of the *Mediterranean* and Ocean. Although the Harbours were extremely good,

t Veget. de re militari lib. 5. cap. 7.
u Herodot. lib. 2.
x Virgil. Geor. lib. 2. Horat. Carm. lib. 1. Od. 37. Strabo lib. 1.

good, the difficult access to their Coast, the sandy Desarts towards the East, the defence of the *Red-Sea*, with the *Isthmus* joyning *Ægypt* to *Syria*, and the Mountains towards the South, were reckon'd as Bulwarks to the Country; and so they had been, (if possessed by Inhabitants of a warlike disposition, but they were noted for the contrary Character,) rendring the Conquests of it difficult. *Sesostris* had join'd the *Nile* to the *Red-Sea* by a Canal, which opened a Water-carriage to the *East-Indies*. And what *Strabo* says of *Ptolomy Philadelphus* being the first who made a way for the marching of an Army from *Coptos* to the *Red-Sea*, is only a Complement to a *Greek*. The Ships which *Sesostris* sent to the *Indies* must not have been small, he had consecrated one of 280 Cubits to the God *Osyris*. *Lucian* saw an *Ægyptian* Ship in his time in the *Piræum* 120 Cubits long, 30 broad, and 29 deep. *Appian* in his Preface reckons the Forces by Sea and Land of *Ptolomy* the son of *Lagus* 200000 Foot, 40000 Horse, 300 Elephants, 500 Gallies, 2000 smaller Vessels, and 800 *Thalamegos* or Pleasure-boats of a great size.

The Government of *Ægypt* was one of the great secrets of the politicks of *Augustus*; that Province was never given to a Senator, but always to a Knight, who was suppos'd not to have the ambitious aims of Senators. *Germanicus* was severely reprimanded by *Tiberius* for travelling into *Ægypt* without his Permission.

As to the Revenues of *Ægypt* in later times, *Emalcin* Author of the History of the *Saracens* says, that in the year of Christ 898 the Calif drew from *Ægypt* 300.200000 Crowns of Gold.

The Trade of *Ægypt* declin'd with the *Roman* Empire; grew still less under the *Mamelukes*, who had a Genius and Maxims quite opposite to Commerce; and at last came to be entirely lost by the navigations of the *Portuguese* round the Cape of *Good Hope*, and their Establishments in the *Indies*. *Grand Cairo*, which was built in the year of our Lord 795 out of the Ruins of the ancient *Memphis*, suffer'd much by the loss of their Trade on this occasion.

occasion. There remains some part of their Linnen trade, for which they were always so famous.

The ancient City of *Thebes*, call'd *Hecatompyle* from its hundred Gates, was almost ruin'd by *Cambyses*, and very near desolate in the time of *Strabo*; but *Alexandria* surpassed in Riches and Trade, not only all the other Cities of *Ægypt*, but of the whole World. [y] *Josephus* describes it with great pomp, telling us that it yielded to *Rome* in nothing, except in bigness. [z] *Ammian Marcellinus* calls it the chief of Cities. It sent many rich commodities to *Rome*, as Cloaths of all sorts, especially Linnen, Spices, Paper, Glass, Hemp, magnificent Robes. As it exported many, so it received some from other *European* Ports, which by reason of the fatness and heaviness of the ground *Ægypt* did not produce, such as Metals, Wood, Pitch, and some Fruits. This great Trade began to decline under the Reign of *Heraclius*, when the *Saracens* made themselves masters of *Ægypt*, but it recover'd a little again; for a *Jew*, one *Benjamin* of *Navar*, in his voyage made in the 12th Age, tells us that he saw there a great Trade, and resort of Merchants. And, the *Indian* Trade, which had been brought to *Astracan* by the *Caspian* Sea, and to *Cafa* by the black Sea, took once more the way of *Ægypt*, and continued till the time of the navigation of the *Portuguese* to the *Indies*.

Æthiopia sent many rich Commodities down the *Nile* into *Ægypt*, as Metals, particularly Gold. The Gold of *Ophir* is often mentioned in the Scriptures. [a] *Heliodorus* tells us that the *Æthiopians* used Gold for the most common purposes; besides Gold, they had Ivory in abundance. The City of *Coptos* was the Magazine of all the Trade from *Æthiopia* by the *Nile*, as well as of those Commodities that came from the West by *Alexandria*. The Navigation of the *Arabick* Gulf being more dangerous towards the bottom, than the mouth, *Ptolomy Philadelphus* built *Berenice*, (so called from his Mother) at the entry of the Gulf, in the Country of the

y Joseph. lib. 2. cap. 16. de Bell. Jud. z Ammian. Marcellin. lib. 22. a Heliodor. lib. 9. Æthiop.

the *Troglodites,* to receive the goods from *Coptos.* It had near that City the port of *Myos-hormos,* the harbour of Mice, and now call'd *Casir.* *Aduli,* according to [b] *Pliny,* in the country of the *Troglodites* (a part of *Æthiopia*) was a place of great Trade. [c] *Strabo* tells you that in his time they sent Fleets out of the *Red-Sea* to the extremities of *Æthiopia,* and imported quantities of precious goods from thence. These considerations induc'd *Augustus,* when he sent *Ælius Gallus* into *Arabia,* to extend his commission to *Æthiopia,* and the *Trogloditick,* apprehending likewise that it was in the power of the *Æthiopians* to change or at least spoil the course of the *Nile.* *Elmacin* in his History of the *Saracens,* tells us that in the
A.D. 1104. *Hegyr.* 482. time of *Mustancer,* Calif of *Ægypt,* the waters of the *Nile* being very low, and consequently *Ægypt* threaten'd with a famine, that Prince sent *Michael* Patriarch of the *Jacobites* with great presents to the King of *Æthiopia,* with a request, that he would open the Sluces of the *Nile*; which being granted, the *Nile* rose three cubits in one night. *John Cantacuzene,* who quitted the Empire of *Con-*
A.D. 1360. *stantinople* for a monastery, tells us in the History of his Reign, that the Sultan of *Ægypt* endeavour'd to keep a good correspondence with the *Jacobites* who were established towards the head of the *Nile,* for fear they should take a fancy to turn the course of that River. The famous *Portuguese Alphonso d'Albuquerque* had the same extravagant fancy to turn the course of the *Nile* into the *Red-Sea,* to revenge himself of the Sultan of *Ægypt* who interrupted his trade to the *East-Indies.*

Arabia was a Country of great Commerce in the time of the *Romans.* *Aden* before-mention'd had in its harbour at the same time Ships from all parts of the World. The *Gerrheans* and the *Mineans,* ancient Inhabitants of *Arabia,* formerly carried their Spices by land to the Frontiers of *Palestine.* *Azotus,* according to [d] *Pomponius Mela,* was the Staple Port of the *Arabians* upon the *Mediterranean.* There cannot be a better account of the Merchandises of

[b] Pliny lib. 6. cap. 29. [c] Strabo lib. 17. [d] Pompon. Mela. lib. 7.

of *Arabia*, than by [c]*Moses* himself who liv'd so long amongst them. The Prophecys of *Psalm* 71, the Presents of the Queen of *Sheba* to *Solomon*, and those of the three wise Men to our Saviour; and what *Ezekiel, cap.* xxvii. *v.* 21, 22, *&c.* says of their traffick with the *Tyrians* in Spice, Gold and precious Stones, are all authentick accounts of the Richness of their Merchandise. The *Arabians* had all the qualities of the God *Mercury*, for they were not only addicted to Commerce, but stealing; they are naturally courageous, and it must be reckon'd amongst the most wonderful events that ever happen'd amongst mankind, that a handful of people of that country should partly by Valour, and partly by Enthusiasm, establish perhaps a greater Empire than that of *Rome*, and in much less time. The Conquest of that Country by *Sesostris* was in order to draw a Canal from the *Red-Sea* to the *Nile*. It is doubtful who began this great work, but it is certain that *Ptolomy Philadelphus* compleated it. This Canal had its opening at the City of *Coptos*. *Augustus* sent *Ælius Gallus* into *Arabia*, who tho' he did not conquer it, being deceived by *Syllæus* Intendant of the *Nabathæans*, yet made such an Establishment for the *Romans*, that in one Port, *Albus Portus* (*White-Haven*) they rais'd no less than 25 *per Cent.* duty upon all commodities enter'd there. *Aden*, mention'd before, was afterwards called *Portus Romanus*.

The *India* Trade was ever reputed the most ancient, the most honourable, and the most considerable of any in the world; all Nations complain'd that it was expensive, yet none ever willingly quitted it. (The Reader may have observ'd what *Pliny*, quoted in a former Dissertation, says of it.) It having been ever the most favourite Branch of Trade to all Nations and Princes that have made any figure in the world, I hope the Reader will not be displeas'd with the following short History of it.

It is plain the ancient *Ægyptians* had a great Commerce with the *Indies*, that *Ptolomy Philadelphus* did not begin, but restore this Trade. It is not credible that the *Phœnicians*, who navigated to the extremities of the western Ocean, who carried on a Land-

c Gen. ii. 11, 12.

trade to *Syria* and *Mesopotamia*, and to the Frontiers of the *Indies* by Sea, who according to the Prophet *Ezekiel*, *cap.* xxvii. 15. had established Colonies in the *Persian* Gulf, call'd by their own names, *Tyrus* and *Aradus*, stopt short, without pushing their Trade to the *Indies*. *Taprobana*, which was always acknowledged to be in the *Indies*, worshipped *Hercules* the God of the *Phœnicians*; a sign that the *Phœnicians* had been amongst them. *Mela*, *Pliny* and *Capella* speak of the *Seres*, the same people with the *Chinese*, as being very shy and diffident in their manner of dealing, so as neither to speak nor be seen by the strangers with whom they traded, yet as being just and honest. Time humanized them a little.

One certain sign that Commerce had been well established between the *Indies* and the Eastern Coast of *Africk*, is, that the *Portuguese* when they had doubled the *Cape of Good Hope*, found at *Mozambick* and *Melinda* skilful Pilots using Astronomical Instruments, Geographical Charts, and Compasses. *Arrian* in his *Periplus* of the *Erythræan* or *Red-Sea*, tells us that before the *Ægyptians* had penetrated into the *Indies*, or the *Indians* come into *Ægypt*, the Port called afterwards *Arabia Fœlix* was the Staple for the Merchandise of both Countries. The same Author describing the *Persian* Gulf, names two famous Ports, *Apologus* and *Ommana*, to which great Ships brought from the *Indies* Copper, Horns, precious Wood, and from whence were exported Pearls, purple Stuffs, Robes, Wine, Dates, Gold, and Slaves. The *Indies* were very little known to the *Greeks* before the time of *Alexander* the Great. They treated the voyage of *Iambalus* to the *Indies*, related by [f] *Diodorus*, as a Fable. *Alexander* himself, from a vain-glorious Spirit unworthy of him, exaggerated the strength and stature of the *Indians*, and endeavour'd to impose upon Posterity, by monuments of an enormous size, that he erected in several places. The *Greeks* who follow'd his Army, in this matter follow'd likewise his example. *Nearchus* who commanded *Alexander*'s Fleet, and *Onesicrates* his Intendant-general of Marine, have both left relations of the State of the *Indies* at that time, which [g] *Strabo* treats as fictions, mixt with some truth.

[f] Diodorus lib. 2. [g] Strabo lib. 17.

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truth. *Pliny* made an Abridgment of the Journal of *Onesicrates*, taken from *Juba*, and tells us that after the Navigation of *Onesicrates*, the common Course was from the Promontory of *Syagros*, (thought to be what we call Cape *Fartak*) to *Patalus* in the mouth of the *Indus*; that afterwards the Course from Cape *Syagros* to *Zigeros* was found more safe and short. The *Indian* Fleets which carried the *Roman* Trade, went out in the month of *July*, and came back in *December*. We have observ'd already that *Ptolomy Philadelphus* restored the *Indian* Trade to *Ægypt*. *Strabo* reports upon the faith of *Posidonius*, that in the Reign of *Ptolomy Euergetes*, second of that name, there was found in the *Arabick* Gulf a vessel with an *Indian* half dead in it. This *Indian* told them that mistaking their Course, the Crew all except himself were dead of Hunger: this *Indian* however served as a Guide for those whom King *Ptolomy* sent to the *Indies*. By this story it would seem, that the *Indian* Trade had been neglected in *Ægypt* for the space of 140 years. *Strabo* likewise tells us, that when *Ælius Gallus* was Governour of *Ægypt* under the Reign of *Augustus*, a Fleet of Merchants from *Alexandria* sail'd into the *Red-Sea* by the *Nile*, that he himself saw 120 Vessels sail out of *Myos-Hormos*, (the Port of Mice, before mention'd) to *India* and *Æthiopia*, from whence they brought back very rich Commodities; and that under the Reigns of the *Ptolomys*, there were hardly twenty Ships that sailed quite out of the *Arabian* Gulf. The *Romans*, not only from Luxury but Interest arising by the profit of this Trade, afterwards encouraged it very much; by which the *Indians* came to know the power of *Rome*, and sent Embassadors to *Augustus*. The Inhabitants of *Taprobana* in the *Indies* at that time were so ignorant of Navigation, that they steered their Course by the flight of Birds, who they reckon'd would fly to the nearest coast. *Pliny* tells us that this Island was discover'd under the Emperor *Claudius*, by a *Libertus* of *Annius Plocamus* being cast upon that coast by a Tempest. The Inhabitants, informed by this *Libertus* of the power of the *Roman* Empire, sent Embassadors to *Claudius*, to ask his Friendship:

ſhip: theſe Ambaſſadors inform'd the Emperor of their Commerce with the *Seres*, a more Eaſtern People, whom they deſcrib'd as gentle, but unſociable. The two *Indian* Merchants caſt by a ſtorm on the coaſt of *Germany*, carried firſt to the King of the *Suevi*, and preſented by him to *Metellus Celer*, then Proconſul of *Gaul*, has occaſion'd a great many reaſonings about the Courſe they muſt have ſteer'd; ſome imagining that they might have come by the Northern Sea of *Tartary* through the Straits of *Waigates*, and ſo into the *German* Ocean. M. *Huet* has a ſhort way of explaining all this matter, by ſuppoſing that the barbarous People among whom they were caſt, called them by what name they pleaſed, taking any Nation whom they knew nothing of to be *Indians*. Under the Reign of the Emperor *Antonine*, the *Roman* Trade flouriſh'd very much, not only the *Indian*, but that of the *Mediterranean* and Weſtern Ocean. *Ammianus Marcellinus*, about *U. C.* 1044, ſpeaks of the great Trade that was carried on in the Reign of *Conſtantius* at *Batne*, a City built by the ancient *Macedonians*, &c. of a great Fair they held there in the beginning of *September*, where Merchants purchaſed the Commodities of the *Indies*, and of the Country of the *Seres* or *Chineſe*. Thoſe Merchandizes were tranſported by Caravans through *Perſia*, and others which came from the *Perſian* Gulf, and were tranſported afterwards into the *Euxine* Sea, went up the *Euphrates* from whence the Town of *Batne* was not far diſtant. *Firmus* having ſeiſed upon *Alexandria* under the Emperor *Aurelian*, carried on the *Indian* Trade, and by it no doubt acquir'd thoſe great Riches of which *Vopiſcus* ſaith he was poſſeſs'd. About this time Merchandiſing came to be a more honourable profeſſion amongſt the People of Quality in *Rome*.

A. D. 294.

There are a multitude of Cities of Trade reckon'd up by the Geographers, particularly by *Ptolomy*. *Alſragan* who lived *A. D.* 800, *Cherif Edeſſi*, under the title of the Geographer of *Nubia*, later than *Alfragan* 350 years; as for the Cities in general, with or without Commerce, if we believe *Strabo*, *Pliny* and *Plutarch*, there are about 5000 only in that part of *India* which was conquer'd by *Alexander*.

Benjamin

Benjamin of *Navarre*, a *Jew* mention'd before, has wrote a relation of his voyage, which contains several curious things intermixed with some Falshoods. *Marcus Paulus* a *Venetian* says that in his time, about the 13th Age, the Commerce on the Coast of *Malabar* was very inconsiderable. *Mario Sanudo* a *Venetian*, who lived about the 14th Age, a Man full of zeal for the recovery of the Holy Land, and the destruction of the Sultan of *Ægypt*, tells us, that the greatest part of his Revenues arose from the Trade of Spice and other *Indian* Goods. He names the two principal Ports in the *Indies*, *Malabar* and *Cambaya*; that the Customs paid to the Sultan were about the third of the value of the Goods; he would have been more surprized at the customs of *India* Goods in our time; he observes that the Spices brought by Land-carriage were much better than those which came to *Ægypt* by Sea. In the History of the *Moluccas*, there is mention made of a *Venetian* Ship seen in the *Eastern* Seas, bound from *Manillia* to *China*, which consequently must have doubled the *Cape of Good Hope*.

Smarcanda the Capital City of *Transoxiana*, the *Maracanda* of the Ancients, situated beyond the *Oxus*, was formerly a famous place of Traffick, where the *Chinese*, *Tartar*, *Persian* and *Indian* Merchants resorted. This City was the Seat of the Empire of *Tamerlane*. The *Turkish* Conquests, and the Trade of the *Portuguese*, have diminished the Commerce of that place. *Smarcanda* had eclipsed *Bogar* or *Bokara*, which was not far distant from it, situated on the North of the River *Oxus*, in 39 degrees of Northern Latitude; it was formerly the Capital City of all that Country, and is now in the possession of the *Usbecks*; there is a description of it by *Anthony Jenkinson* in *Hackluit*'s Collection; it was possessed of great Trade, and the native Place of *Avicenna*, as *Hera* was that of *Mircond* Author of the Oriental History wrote in the *Persian* Tongue. *Hera* is one of the chief Cities of *Chorosan*, famous for the Industry of the Inhabitants, and great resort of Merchants. *Candachar*, an ancient and populous City situated in the Province of the same name, was formerly the Repository of the *Indian* and

Persian

Persian Goods, but the Commerce of it is weakened since the Navigation of the *Cape of Good Hope*. *Cabul*, Capital of a Province of the same Name, was a famous place for the Spice Trade; the Inhabitants of that Country are called by *Ptolomy* * *Cabolitæ*; it was formerly the Seat of some *Indian* Kings: But no Country exceeded the *Taprobana* of the Ancients, called by the *Nubian* Geographer *Sarandib*, *Serlandive* in *Teixera*, and *Serandine*, and the People *Serandini*; according to † *Ammianus Marcellinus*, its Trade consisted in Pearls, precious Stones, Cinamon, Musk, Civet, Silk, and Ivory.

The Geography of the extremities of the *Indies* was little known to the Ancients. They were inhabited, according to their Accounts, by three different Nations, the Eastern *Scythians*, the *Seres*, and the *Sinæ*. The Eastern *Scythians* are now the *Tartars* Northward of *China*. The *Seres*, Inhabitants of the Northern parts of *China*; and the *Sinæ* Inhabitants of the Southern. The oriental *Scythia* or *Cathay*, *Caracathay* or *Black Cathay*, is that Country which the *Arabian* Geographers and the Scriptures call *Gog* and *Magog*. The Oriental people in general went almost all by the name of *Seres* among the Ancients. They were famous for their Justice in Commerce, but extreme shyness to strangers. They exposed their Goods with the Price mark'd upon them, then retir'd; the Merchants came, left the price which they would give upon the Goods, and likewise retir'd: the *Seres* returning, carried off either their Goods or the Money as they liked best. *Eustathius*, who relates this, adds, upon the faith of *Herodotus*, that the *Carthaginians* traded after the same manner with some people beyond *Hercules's Pillars*. The *Seres* were famous among the Ancients for their Manufacture of Silk. Under the name of *Sinæ* or *Thinæ* the Ancients comprehended not only the Southern *Chinese*, but the Inhabitants of *Tunquin*, *Cochinchina*, *Pegu* and *Siam*. The *Sinæ* or ancient *Chinese* were not so unsociable as the *Seres*; they were great Navigators, and much addicted to Trade: They owned the *Indians* as their Ma-

sters

* Ptol. Asiæ cap. 18. † Amm. Marcel. lib. 22.

ſters in Arts and Sciences. *Confutius* himſelf acknowledges that he learn'd his Philoſophy from the *Brachmans*; and both the *Indian* and *Chineſe* Erudition came from the *Ægyptians*. *Arrian*, in his *Periplus* of the *Erythræan* or *Red Sea*, has ſet down the principal Merchandiſe that came from the *Indies*, which are ſome of the ſame brought at this day. Before the time of *Auguſtus* the common courſe to the *Eaſt-Indies* was by the *Red Sea*, of which Navigation *Pliny* gives a very exact Deſcription. It does not appear that the antient Geographers had any notion of the Courſes which the moderns have try'd by the Strait of *Waigats* and *Nova Zembla*. The Ancients had ſtrange opinions concerning the Geography of the Northern part of *Aſia*, they believed that the *Caſpian* Sea was a Gulph of the *Scythian* or Northern Ocean of *Aſia*, that thoſe two Seas were join'd by a Channel large enough for the Paſſage of Ships; and this after a plain Teſtimony of *Herodotus* to the contrary.

It is probable that there was ſome Commerce by Land between the Northern part of *Aſia* and *Europe* anciently as well as now, between *Muſcovy* and *China*. There was an old Road to *China* by *Smarcanda*, mention'd before, ſituated beyond *Oxus*, by which River *Smarcanda* carried on it's Trade to the Weſt over the *Caſpian* Sea, and from thence up the *Volga* to the Northern Countries of *Europe*. If one conſiders that paſſage, it ſeems poſſible to go generally by Water-carriage from *China* to *Spain* without entring into the Ocean, *viz.* from the Eaſt by the *Oxus*, the *Caſpian* Sea, the *Volga*, which might be join'd to the *Tanais* by a Canal of ſix *German* Leagues, then by the *Tanais* entring into the *Euxine*, and from thence to the Straits of *Gibraltar*. *Strabo* points a ſhorter Road ſtill by the *Caſpian* Sea, *viz.* turning towards *Albania*, and aſcending up the River *Cyrus*. *Seleucus Nicator*, according to *Pliny*, had deviſed a way to join *Aſia* to *Europe*, and the *Caſpian* Sea to the *Euxine* by a Canal from the *Cimmerian Boſphorus* to the *Caſpian* Sea. Time has much changed the diſpoſition of thoſe places, and the *Oxus* is almoſt drain'd by Channels which the neighbouring Inhabitants have made for watering their Grounds.

Strabo lib. 2 Plin. lib 6. cap. 2.

The paſſage by *Cabul* ſtretched Southward by a neighbouring River, which fell into the *Indus*, and from thence into the *Indian* Ocean. The Commerce between *Perſia* and *India* went by *Candachar*, called ſo from *Alexander* who built it, or more probably from the *Candarians*, a people near it. That Road is unfrequented ſince the Commerce between *Perſia* and *India* by Sea. The Caravans of *Iſpahan* and *Agra* go ſtill by the way of *Candachar*, as likewiſe the Trade of *Mingrelia* the antient *Colchis*.

But, to return from this Digreſſion: The *Roman* Trade flouriſhed much under the time of *Auguſtus*, but was not improved under *Tiberius*. Hiſtory only acquaints us that his Fleet went up the *Elbe*, he having carried his Arms as far as the Banks of that River. *Caligula*, an extravagant Prince, prepared himſelf a Triumph for an imaginary Conqueſt of *Britain*, and carried ſome of his Gallies by Land to *Rome*, for an Expedition that ended in gathering Shells upon the Sea-ſhore. He equip'd afterwards ſome Ships neither for Trade nor War, but in order to fly out of *Italy*, upon the News of a Revolt in *Germany*. He was ſo far from benefitting Trade, that he did it a great Injury, and brought *Rome* in danger of a Famine, whilſt he collected from all parts an infinite number of Ships for the Conſtruction of ſome great Work betwixt *Baiæ* and *Puzzola*. [a] *Suetonius* ſaith that *Druſus*, the Father of the Emperor *Claudius*, was the firſt who navigated the Northern Ocean, which is not true; for *Auguſtus* had ſent Ships there before, as * *Pliny* tells us. And *Velleius Paterculus* mentions a Fleet that ſailed up the *Elbe*, when *Tiberius* the Brother of *Druſus* commanded in theſe Quarters, which Fleet came back laden with all ſorts of Merhandize. It was *Druſus* who join'd the *Rhine* to the *Iſſel*, by a Ditch from him called *Foſſa Druſiana*.

The Emperor *Claudius* was the firſt after *Julius Cæſar*, who invaded *Britain*: his Fleet is celebrated [b] by *Seneca* the tragick Poet. *Pliny* writes, that in his triumphing over *Britain* he enter'd the *Adriatick* in a Ship of an enormious Bulk. He conquered a part of

[a] Sueton. in Claud. * Plin lib. 2. cap. 67. [b] Seneca Octav. Act. 1.

of *England*, and the *Orcades*, and left the firname of *Britannicus* to his Son. *Vespasian*, under his command, subdued the Isle of *Wight*. He was so great an Encourager of Commerce, that he charged himself with all the Sea-risque of such Vessels as carried Corn to *Rome* in the Winter time: He augmented and repaired the Port of *Ostia*, built a *Pharos* or Light House, whereof the Foundation was the Ship of *Caligula* before mentioned, which brought the great Obelisk from *Ægypt*: It was under the Reign of *Claudius* that *Corbulo* join'd the *Rhine* to the *Meuse* by a Canal twenty three Miles long. *Nero* never thought of the Sea, but as a means to escape into *Ægypt* when his Affairs grew desperate. *Britain* under his Reign had like to have shaken off the *Roman* Yoke. The apprehension of *Nero*'s Jealousy made *Antistius Vetus* lay aside his Design of joining the *Rhine* and the *Mosell* by a Canal. *Galba*, *Otho* and *Vitellius*, *Nero*'s Successors, had hardly time enough to settle in their Government, and less to enrich themselves by Trade. *Vespasian* coming from the East to take Possession of the Empire, thought it of the utmost Importance for his Design to seize upon *Alexandria*, as the Key of *Ægypt* and the Magazine of *Rome*. He sent *Agricola* into *Britain*, who almost subdued it, and govern'd it with great Prudence. *Tacitus* ascribes to *Agricola* the Discovery of the *Orcades*, and *Thule*, which that Author distinguishes from the *Orcades*, telling us that *Agricola* subdued the *Orcades*, but only discover'd *Thule*. He is mistaken in both; for other Historians ascribe the Conquest of the *Orcades* to the Emperor *Claudius*; and *Pomponius*, who lived in his Reign, reckons their number. *Thule* was known in the time of *Ptolomy Philadelphus*, since *Pythias* of *Marseilles*, who lived in his time, had made a Description of it, which is cited by *Strabo*.

It does not appear that there were any new Discoveries made in Trade under the Emperors *Titus*, *Domitian*, and *Nerva*; but **Trajan*, a Prince ambitious of Glory, descended to the Mouths of the *Tigris* and *Euphrates*, and went upon the Ocean, where having seen a Vessel trading to the *Indies*, he had thoughts of outdo-

* *After* An. Dom. 100.

ing *Alexander* by the Conquest of those Countries, but wisely gave over the Project by the reflection of the difficulty of preserving such distant Provinces. The *Pharos* of *Caietta* and the Port of *Terracina* were repaired by the care of the Emperor *Antoninus Pius*. He, after the manner of *Augustus*, inforced the observation of the naval Laws of the *Rhodians*. There is mention made, in a Decision of the Jurisconsult *Javolenus*, who lived under the Reign of that Emperor, of a *Britannick* Fleet commanded by *Seius Saturninus*, called their *Archigubernus*, which perhaps had been established for the Commerce of that Country, and to keep them in Subjection. His Successor *Antoninus Philosophus* was a great Encourager of Trade, for the Benefit of which he took care of the reparation of the Highways. He put off the representation of Pantomimes till late Hours, on Market Days; and *Aristides* the Orator his cotemporary affirms Traffick to have flourished very much in his time, both in the Mediterranean and in the Ocean. The Emperor *Pertinax* applied himself in his Youth to a gainful Trade practised by his Father, who judging him fit for a better employment had a mind to turn his Education another way; the Son was obstinate in pursuing so profitable a Trade (which was a sort of Merchandise of Wood) by which he acquir'd the name of *Pertinax*. He carried the same genius for Trade into the Government, but exercised it by Ministers. The Emperor *Severus* was very intent upon procuring plenty in *Rome*, and settling peace in all the Provinces of the Empire, particularly in *Britain*, having cast an Intrenchment from one Sea to the other, which separated the barren from the fruitful part of the Island. It was with a View to Commerce that in returning from his Expedition against the *Parthians* he passed through *Ægypt*, informing himself particularly of the Advantages which *Rome* might draw from that Country. Altho' his Son *Caracalla* travelled through the same Country, and seemingly upon the same Motives, yet Revenge appears to have been the cause of the great Massacre which he made at *Alexandria*; wherein nevertheless he had so much regard to the Merchants, that he left them in Security.

Security. *Alexander Severus*, a ſage and virtuous Prince, encouraged Trade at *Rome* itſelf, by moderating the Cuſtoms. This Emperor ſeems to have been the firſt who incorporated the ſeveral Trades of *Rome* into Companies with their particular Privileges; aſſigning them Protectors out of their own Companies, and Judges to decide their Suits. *Maximinus* traded himſelf with the *Goths* in the Product of his own Eſtate in *Thracia*, the Place of his Nativity, whither he retired to withdraw from the unjuſt Domination of *Opilius Macrinus*. The Emperor *Aurelian* conſidered the Importance of the *Ægyptian* Trade, regulated the Prices of Commodities which came from that Country, as well *Indian* as native; and to facilitate the Tranſportation, he took care of the Navigation of the *Nile* and the *Tiber*; and to make the common people feel Plenty, he encreaſed the Weight of Bread without augmenting the Price.

The barbarous People of the North being ſenſible how neceſſary a naval Power was to carry on their Deſigns, endeavoured in this to imitate the *Romans*. The *Goths*, when they attacked the Empire firſt with an Army of 320000 Men, had a Fleet of 2000 Ships (*Zoſimus* ſaith 6000) built at the Mouth of the *Iſter* in the *Black Sea*; which were moſt part deſtroyed in the *Archipelago* by Peſtilence or War. The *Arabs*, under the Empire of *Conſtans*, appeared in the *Mediterranean* with a Fleet of 1700 ſail.

Firmus, who ſeiz'd upon *Ægypt* in the Reign of *Aurelian* (by whom he was vanquiſhed) was ſo far praiſe-worthy, that he encouraged Trade, and particularly the *Indian*, very much in that Country. *Saturninus* in the ſame Enterpriſe had the ſame fate. The Hiſtorians of that time quote a Letter of the Emperor *Hadrian*, wherein he reckons the principal Manufactures of *Ægypt* to be Glaſs, Paper, and Linen Cloth.

The Emperor *Probus*, equal in merit to any of his Predeceſſors, had the peace of the Empire very much at heart. He had a mind to divert the Labour and Induſtry of his Subjects from War to

Agriculture and Trade; and in pursuance of that design, employ'd his Army always in some useful Work. What was so profitable to the Empire became fatal to the Emperor, by a Conspiracy of the Soldiers, who were impatient of this fatigue, and could not bear the Restoration of ancient Discipline. He enlarged the Channels of Rivers, and particularly of the *Nile,* to make them more commodious for Navigation. The Commerce of *Rome* must have suffered under the Empire of *Diocletian,* by the Revolt of the *Britons,* begun by *Carausius,* and continued by *Alectus.* *Carausius* had been entrusted with the *Britannick* Fleet, to repress the Pyracies of the *Franks* and *Saxons* in the Channel; he acquitted himself like a valiant, but not like an honest Man; for he converted the Prizes to his own use. He afterwards usurped the Title of Emperor, invaded *England,* and was kill'd by his Associate *Alectus.* The Trade of *Rome* had like to have suffered another great Stroke by an Insurrection in *Ægypt,* excited by *Achilleus:* But he was kill'd, and *Diocletian* re-established Commerce in that Country. About this time the *Saxons* began to be known to the *Romans,* by the Pyracies and Ravages they made on the Coasts of *Gaul* and *England,* and their peopling some part of the same Coasts. The Affairs of Religion and War took up the Emperor *Constantine* so much, that he had not Time to think of Trade, in which the Foundation of *Constantinople* made a very great Revolution; the Vessels of *Alexandria* carried now their Goods thither, as they did formerly to *Rome.* This new Capital was peopled at the Expence of *Italy,* which this new Plantation exhausted. *Constantinople,* by its Situation, naturally invited the Emperors to think of Trade: accordingly we find in the *Theodosian* and *Justinian* Code the Interest of Trade very well provided for. After this the Incursions of the *Goths* and some other barbarous Northern Nations, so disordered the Affairs of the *Roman* Empire, that they thought rather of their own Preservation, than of enriching themselves by Commerce. After the *Goths,* the *Arabians,* Disciples of *Mahomet,* erected a new Empire more formidable to the *Romans* than the Power of the *Goths:* The

The *Ægyptians*, weary of the *Roman* Government, ſubmitted to the *Saracens*; and the City *Caire* was built *Anno Dom.* 984, which proved a Rival to *Conſtantinople* in Trade; notwithſtanding *Conſtantinople*, under the protection, and by the advantage of an happy ſituation, carried ſtill on a great Trade. *Benjamin* of *Navarre*, a *Jew* abovementioned, tells us he ſaw a great Concourſe of Merchants from all Parts of the World there; this was near the twelfth Century; about this time *Bagdad* in *Perſia* being ſituated near the Frontiers of the *Indies* came to be a place of great Commerce, the *Indian* Goods being carried from thence to *Conſtantinople*. The *Greeks* and *Latins* being mightily delighted with the taſte of *Cloves*, made ſome of the *Greek* Emperors have a mind to conquer the Country where they grew.

Syracone and *Saladine* his Son having extinguiſhed the Caliphate of the *Saracens*, eſtabliſhed the Government of the *Mammelucks* in *Ægypt*, and renewed the *Indian* Trade in that Country; the Militia of the *Mammelucks* depended upon Traffick for young Boys, which they purchaſed in *Circaſſia* and the other Provinces of *Colchis* about the *Palus Mæotis*, and ſeveral other places of that Country; this obliged the Sultans of *Ægypt* to treat with the Emperors of *Conſtantinople* for a permiſſion to ſend a few Ships into the *Black-Sea*, for that Trade.

There were many excellent Laws made for the encouragement of Trade by the *Grecian* Emperors, but the Emperor *Conſtans* was he that ſignalized himſelf moſt in this particular; he declared himſelf Protector of the Mariners, he defended them from vexatious Suits, exempted them from publick Offices and Taxes, and granted them many other privileges. He was ſeconded in this by *Julian*, who had then only the Title of *Cæſar*; by his care the Commerce of *England*, almoſt ruin'd by the Pyracies of the Barbarians, was re-eſtabliſhed; he repaired and augmented the number of veſſels that carried Corn from *England* to *Gaul*.

The *Romans* were reduced to the laſt extremity by the eruption of the *Goths*, and the taking of their City by *Alarick*. Amongſt ſeveral

ſeveral Tyrants that aſpired to the Government at the ſame time, there was one *Attalus*, who endeavoured to ſtarve *Italy* by ſtopping their Convoy of Proviſions from *Africa*; he ſail'd towards the Coaſt with a Fleet of 3700 Veſſels of all kinds: his naval Preparations were not more ſurprizing than his quick and ſhameful Retreat; for he returned to *Carthage* with only one Ship, having fled without landing in *Italy*, or ſtriking one ſtroak.

A. D. 468. The Emperor *Leo* rigged out a Fleet of 1100 Sail, which bid fair for re-eſtabliſhing the *Roman* Power at Sea, had it not been burnt by *Genſerick* upon the Coaſt of *Africk*, by the Treachery of *Baſilisk* the Emperor's General and Brother-in-law.

The *Roman* Fleets, during their Commerce and Command at Sea, had their ſeveral ſtations and departments; the moſt conſiderable was the *Alexandrian* Fleet, under which was comprehended the ſhipping on the *Red-Sea*; the ſecond was the *African* Fleet, for ſupplying *Rome*, and afterwards *Conſtantinople*, with Corn; the third was the Eaſtern Fleet, the principal ſtation of which was at *Seleucia*, a City of *Syria* on the River *Orontes*. This Fleet had ſeveral other leſſer Squadrons depending on it. They had a fourth Fleet of forty Sail in the *Euxine* Sea. There is a fifth Fleet mention'd in the Code, appointed for the Guard of the Treaſures. It does not appear that they had any particular Fleet for the *Spaniſh* Trade.

Rome could not maintain it's Dominion over ſo many Provinces without Squadrons ready equipt in the great Rivers of the Empire, which are ſet down in the *Notitia Imperii.*

The Emperors gave a very ſpecial protection to all Mariners employ'd in the Service of the Government. The fifth Title of the thirteenth Book of the *Theodoſian* Code regards their intereſt only. The ninth Law of that Title protects them not only from perſonal injuries, but all ſorts of violences and concuſſions ordinary and extraordinary, Inconveniencies, Inquietudes; and decrees that they ſhould enjoy a full ſecurity. This Law was inſerted in the *Juſtinian* Code. It was provided by another Law under pain of

of death, that none ſhou'd divert the Ships of Seafaring People againſt their will to other uſes than thoſe for which they were appointed. There were other Laws of the Emperors *Gratian, Valentinian*, and *Theodoſius*, confirming thoſe Privileges for ever, and forbidding all Judges and Magiſtrates under pain of death to give them the leaſt diſturbance. The Emperors *Valentinian, Theodoſius* and *Arcadius* exempted them from all Taxes, to which at the ſame time they ſubjected Merchants without any exception. It has been obſerved before that the *Roman* Laws gave particular exemptions to ſuch as built Ships, or traded in Corn: they were raiſed to the dignity of Knights by *Conſtantine* and *Julian*; and by another Law of *Valens* and *Gratian*, a Senator might be admitted into the Company of Mariners. As they were honoured and protected by great privileges, ſo their Lands were in the nature of Fiefs, for which the Poſſeſſors were obliged to do perſonal ſervice at Sea. That obligation upon the lands did not preſcribe or come into diſuſe, but by fifty conſecutive years of Exemption. They were bound ſo ſtrictly to thoſe perſonal ſervices, that they could not take the Goods of private perſons aboard till the Government was firſt ſerv'd. There were Laws by which they were obliged to keep Ships of an uſeful Size. The Government on preſſing occaſions could command the ſervice of the veſſels of private Proprietors, as well as their own.

The ancient *Nundinæ*, or Fairs of *Rome*, were kept every ninth day; which cuſtom continued under the Emperors. Afterwards the ſame privileges were granted to the Country Markets; which was at firſt under the power of the Conſuls. For the Emperor *Claudius* was obliged to aſk the privilege of a Market for ſome of his own grounds, from the Conſuls. This power was at laſt lodged in the Hands of the Emperors.

This is a ſhort Hiſtory of Navigation before the invention of the Needle; when and by whom that diſcovery and improvement was made, is ſomewhat uncertain: it is older than ſome people have

have imagin'd. Mr. *Pasquier* in his most excellent Book *des Recherches de la France, lib.* 4. *cap.* 35. has proved the Compass to have been in use in the time of St. *Lewis*, who came to the Crown *An. Dom.* 1226. He quotes some verses of *Hugues de Bercy*, who liv'd in the time of St. *Lewis*; which, because they give an ample description of it, I have set down. They are in his *Bible Juyot*.

After he has compared the Pope to the Pole-Star, he goes on,

Mais ceste estoille ne se muet,
Un Art font qui menter ne puet
Par vertu de la Mariniere
Un Pierre, Laide, & Noiriere,
Ou le fer, volontiers se joint,
Et si regardent le droit point
Puis que l'aiguille l'a touchie
Et en un festu l'ont fichie,
En lieu le mettent sans plus,
Et li festus le tient dessus:
Puis se tourne, la pointe toute
Contre l'estoille, si sans doute
Que Japer rien ny faussera
Ne Maronniers, n'en doubtera.
Quand la nuict est obscure & brune,
Qu'on ne voit Estoille, ne Lune,
Lors font à l'aiguille allumer,
Puis ne peuvent ils s'égarer:
Contre l'estoille va la pointe,
Perce sont li Maronniers cointe
De la droitte voye tenir:
C'est un-ars qui ne puet mentir:
Là prennent la forme, & le molle,
Que celle Estoille ne se crolle,

Moult

Moult eſt l'eſtoille belle, & claire:
Tel deuroit eſtre le Sainct Pere,
Clercs deveroit eſtre, & eſtable.

There *Bercy* calls the Loadſtone the Mariner's Stone, as the principal inſtrument for ſteering their Courſe. That an iron Needle being touch'd with this Loadſtone turns towards the Pole-Star, ſo that Mariners in the darkeſt night by the help of a Candle, having fitted their Compaſs, can judge of their Courſe. There is a Particularity curious enough in their Compaſs, which was thus, they join'd three or four ſtraws one above another, and fix'd the Needle upon them, and letting them ſwim in water, mark'd where the Needle turn'd.

A

DISSERTATION

Concerning the Doses of Medicines given by Ancient Physicians.

THE Knowledge of the value of ancient Weights and Measures is very necessary for the right understanding of the writings of the ancient Physicians, and I hope it will not be unacceptable to the Students of the Profession, if I give a few instances of the use of the Tables in computations of this kind: at the same time I hope they will excuse the imperfections of this Essay, compos'd in haste upon a subject that really deserves to be consider'd with more attention.

Hippocrates divided the *Drachma* (which I will suppose to be the *Attick*, except where he mentions another) into 6 *Oboli*, according to the usual manner of reckoning in *Greece*; and no doubt in imitation of him, *Celsus* divides the *Denarius*, which was always supposed equal to the *Drachma*, into 6 parts.

The learned and accurate Dr. *Hooper*, Bishop of *Bath* and *Wells* has observ'd that the Physicians made their Prescriptions by *Drachmas*, not according to the Standard Weight, but by the current Coin of their time; he supposes indeed the *Denarius* to have been equal to 64 Grains; according to my computation, it is only

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$62\frac{41}{49}$; perhaps he is in the right. There is ſome ſmall difference between us in the *Engliſh* Weights, for he aſſumes a different proportion of the *Engliſh Averdupois* Pound to the *Troy* Pound, from that which is ſuppoſed in the Tables of this Book; it is allowed that the *Roman* Ounce is equal to the *Averdupois* Ounce, and conſequently, the *Roman* Pound conſiſting of 12 Ounces, and the *Averdupois* of 16, the *Roman* Pound muſt be according to both reckonings $\frac{3}{4}$ of the *Averdupois* Pound, but he makes the proportion of the *Averdupois* Pound to the *Troy* Pound, 175 to 144, perhaps a more accurate proportion than mine. According to Dr. *Wibert*, whom Sir *Jonas Moor* quotes as very accurate, it is only as 17 to 14, and conſequently the *Averdupois* or *Roman* Ounce to the *Troy* Ounce is as 51 to 56; according to the Biſhop, there are in the *Roman* Ounce 437,5 *Troy* Grains, accoding to the computation of the Tables 437 $\frac{1}{7}$, of which the ſeventh part, *viz.* the *Denarius*, is equal to $62\frac{22}{49}$. The *Engliſh* Phyſicians make uſe of *Troy* Weight after the following manner:

Grains				
20	Scruple			
60	3	Drachm		
480	24	8	Ounce	
5760	288	96	12	Pound

The *Paris* Pound conſiſts of 16 Ounces, of which the Ounce is equal to 472,5 *Engliſh Troy* Grains. The Phyſicians reckon to their Pound 12 of thoſe Ounces, conſequently their medical Pound is equal to 5670 *Troy* Grains, and leſs than ours by 90 Grains; and their Ounce leſs by 7 $\frac{1}{2}$, and their *Drachm*, which is the eighth part of their Ounce, is leſs than ours by $\frac{11}{16}$ of a Grain. But they reckoning 576 Grains in their Ounce, makes ſtill a greater difference in the quantity of the Grain, for 105 of our Grains make 128 of theirs. This ſhort account of the *French* medical

 Weights,

Weights, (tho' they are not ancient,) is not foreign to our purpose. See Bishop *Hooper*'s Treatise of Weights and Measures.

In the following computation of the Doses of ancient Medicines, I shall make use of the Weight of the *Denarius* and *Drachma* as Coins, both supposed equal to 62 ⅘ *Troy* Grains. The sixth part of this, or the *Obolus Atticus*, and likewise the sixth of the *Denarius* used by *Celsus*, is equal very near to 10,4 Grains. Sometimes *Hippocrates* mentions the *Æginæan* Weight, which is bigger than the *Attick* in the proportion of five to three.

I shall begin with a short account of *Hippocrates*'s manner of prescribing, who indeed very seldom mentions the Doses of his Medicines: perhaps because they were commonly prepared and administred by the Physicians themselves, or that the Sons of the Art were sufficiently instructed in these things, and the Doses were likewise to be different according to the strength and other circumstances of the Patient; yet this is somewhat surprizing, because his Purgative Medicines are generally very rough and strong, such as *Hellebor*, not only the black but the white: *Elaterium* or the juice of the wild Cucumber; *Cnidian* Grains, or the Berries of the *Mezerium*; *Peplus* and *Peplium*, both Species of the *Tythimalus* or the greater *Spurge*. Besides those Purges, there were the *Thapsia*, the juice of the *Hippophaæ*, which is supposed to be a sort of *Rhamnus*; *Coloquintida*, *Scammony*, *Magnesian Stone*, *Cnicus a carthamus*; *le Clerk* mentions likewise a sort of purging white *Poppy* as a Medicine of *Hippocrates*.

Those purging Medicines, as said before, are often mentioned without naming the Doses; thus in an inflammation of the Lungs, when the spitting is suppressed, [a] he orders after the sixth, seventh or ninth day, to take white *Hellebor*, *Thapsia*, fresh *Elaterium*, of each equal parts; and to make the Patient vomit, but with a prediction of the great danger of the Patient. [b] In a vehement pain of the head, the juice of the *Thapsia* in warm water for a Vomit, without mentioning the Dose.

[c] He

[a] De morbis lib 1. [b] Ibid.

[c] He orders *Scammony* in bilious cases, *Hellebor* in defluxions of the Head, white *Hellebor* in a *Dropsy*; but when he mentions *Hellebor* without any addition, it is to be understood of the black *Hellebor*. He orders *Cummin*, and *Carrot* Seeds or *Seseli* to be mixt with *Hellebor*, but with the *Peplium* the juice of the *Laser*, or *Assa fœtida*.

[c] In some places, he mentions the Doses particularly of *Elaterium*, which he orders in a woman's case, the weight of an *Attick Obolus*, which is about 10 ½ Grains in a *Cyathus*, that is somewhat more than 2 Ounces of Wine.

For the expulsion of a dead *Fœtus*, he orders a *Pugil* of black *Hellebor*, and the quantity of a bean of *Myrrh* in a draught of sweet Wine. It is surprizing to see Drugs of that force ordered in so great and uncertain Doses; but when they were given for vomiting as well as purging, the ancient Physicians did not reckon this of so great importance, for they reckon'd that a greater Dose wrought quicker, and came up so much the sooner.

[d] He gives as far as thirty *Grana Cnidia*, or Berries of the *Mezerium*. It seems by his manner of ordering outward Medicines, that the inward Doses of them were known to the Sons of the Art; for his Style often runs thus, As much of such a Drug as makes one, two, three Potions; thus in Lotions in women's cases he orders two potions of *Hellebor* macerated in two *Cotylæ* or *Heminæ* of water: a *Cotyla* or *Hemina* is a little more than our half pint of Wine-measure. For the same purpose he orders sixty *Grana Cnidia*, or *Mezereum* Berries macerated in Oyl and Honey, by which it would seem that thirty of them was an inward Dose.

For the same purpose, one Dose or Potion of the *Cneorus* (a Remedy taken likewise from *Mezereum*) macerated in an *Æginean Hemina* of *Hydromel*, or Honey and Water. The *Æginean Hemina* must be according to the proportion of the *Talent*, larger than our half pint, or about ⅗ of a Pint.

Immediately afterwards he orders for the same purpose one Potion of *Scammony*, macerated in *Hydromel*, or an *Attick Hemina* of

c Lib. de Superfœtatione. d De natura muliebri.

of Raisin-water; where the change of the Measure is very remarkable, and it seems very unaccountable to be so exact in the quantity of liquor, where a small error was of little concern, and to be so loose in the Doses of powerful Medicines. If I were allowed to guess at the reason of this proceeding, I should believe that the Medicines being prepared by the Physicians themselves, and the lotions or fomentations by the Nurses; he thought it was much more necessary to be exact with the one than the other; and you will find through his whole Writingss that he is very precise and exact in ordering alimentary things; and likewise it is not improbable, but that he concealed the Doses of his Medicines from all others but the Sons of the Art.

He is very nice in distinguishing the different qualities of his Purges; he tells you that *Hellebor* is a better Purge than the *Peplium*, but the *Peplium* was better against Wind. He seems to have been the first, who divided Purges into *Hydroticks*, Purgers of Bile, *&c.*

[e] I think there is one sort of Remedy which he uses in Dropsies, *viz.* the water of the *Hydropicks*, which he saith is a Remedy for the Disease.

[f] There is mention made of *μάννα* or *Manna*, not as a purging Medicine; it is applyed externally.

The next thing of which the Doses ought to be nicely determined are *Opiats*, but tho' he speaks of such Medicines as procure Sleep, and ease Pain, he doth not determine their Doses; he names the *μήκων*, and *μηκώνιον*, by which he understands the Poppy and the juice of it. [g] He speaks both of the white and the black Poppy as astringents, but saith the black *Poppy*, or that with the black seed, excells most in that quality. [h] In another place he reckons the *Poppy* amongst the Spices. [i] Amongst the *Opiats* may be reckoned the *Mandragora*, *Hyosciamus*, *Henbane* seed; the one he prescribes to melancholy people only with this caution, that it should not

[e] Lib. de internis affectionibus. [f] Lib. de natur. muliebri. [g] Lib. de ratione victus, &c. [h] De internis affectionibus. [i] De locis in homine.

not be given in so great a Dose, as to bring madness, the other to be taken in the measure of a *Concha*, which is the same with the *Oxybaphum*, above $\frac{1}{4}$ of a Pint, adding that the madness which it induces will be taken off by Ass's Milk. He prescribes *Opium* and Milk to prevent abortions, till the Patient is quick. *Cantharides* are another Medicine of which the Dose must be very nicely determin'd, he prescribes them both outwardly and inwardly, [k] five of them in a *Pessary*, cutting off their heads and feet, mixt with *Myrrh*, *Incense* and *Honey*. [l] Three] *Cantharides* the same way prepar'd given in a quarter of pint of water in a *Dropsy*. [m] Four of them in a quarter of a pint of white Wine in one of the kinds of *Jaundice*. [n] As for *Clisters* he specifies them as he doth his Purges, some for purging off *Pituite* or *Phlegm*, and others for purging off *Bile*. In some he determines the quantity of the liquid, in others not; as for example, one for purging off *Bile* is after this manner, Of the juice of the *Laser*, as much as makes one Potion or Dose, half a *Drachm* of *Elaterium*, of *Coloquintida* a *Drachm*, these ingredients diluted with Honey, Oyl, and Sea-water in which Bran was boiled; he gives great quantities of *Salts* in his *Clisters*, an *Acetabulum* of common Salt, or ten *Drachms* of *Nitre*.

The *Laseris Succus*, which he speaks of, is the same with our *Assa fœtida*; by reason of the great quantities sometimes prescribed, a *Drachm* is but a very moderate Dose, to expell a dead *fœtus*: he uses a *Drachm* of *Laseris Succus*, and an *Acetabulum* (which is above three Spoonfulls) of the juice of *Leek*.

Another of his *Clisters* is composed of a *Hemina* of Wine, that is above half a pint, $\frac{1}{2}$ *Hemina* of Oyl, and as much of Honey, of *Nitre* the bigness of a Sheep's ancle; this shews that it was kept in great pieces, for he often makes use of that expression to determine the quantity of *Nitre*.

[o] Another *Clister* is thus composed, two *Heminæ* of white Wine, half a *Hemina* of Honey, *Ægyptian Nitre* torrified a Quadrant, a *Hemina*

k De morbis mulierum lib. 1.
l Ibid.
m De ratione victus, &c.
n De intern. affection.
o De morbis mulierum lib. 1.
* De natura muliebri.
p De internis affectionibus.

mina of the expressed juice of the wild *Cucumber*; this in an *Anasarca*. This *Clister* is very strong, and in our measures runs thus,

Take of white Wine fourteen Ounces, three *Drachms*; of Honey ¼ Pint, one Spoonful; of the expressed juice of the wild Cucumber ¼ Pint, two Spoonfuls; of *Ægyptian Nitre* three Ounces.

The *Quadrans* here meant he expresses in other places to be the quarter of a *Mina*, which is somewhat less than our Pound, taking the value of the *Drachm* as above; the whole Liquor of the *Clister* will make above a Quart and five Spoonfuls.

[q] In a *Tetanus* to move the belly he proceeds by this method, first with a *Suppository* of ten inches long of Honey and Bull's Gall, then with a *Clister*; that proving ineffectual, he makes use of a Smith's Bellows, and afterwards applies a *Clister*.

Q. Whether Wind might not be drawn out of the Bowels by a Machine contrived after the manner of an Air Pump?

[r] Blood-letting is another subject of enquiry. *Hippocrates* let great quantities, and open'd several veins at a time; he saith that it should be done with broad Lancets, or as it is in the original, Swords, in order to make a large Orifice: from which one may guess that the manner of opening a vein at that time, was by stabbing or pertusion, as it is performed in horses. He tells you that in applying of Cups the Scarification ought to be made with crooked Instruments. He often has the expression of letting blood to a great quantity, without mentioning the Weight or Measure. He let blood often *ad deliquium*, till the Patient fainted. [s] He tells you of one Patient in a complaint of his Bowels, who was let blood till he had scarce any left, and that he was perfectly cured; by this one would imagine his Disease had been an inflammation of the Bowels.

He was extremely careful in ordering the kind and quantity of Dyet, especially in acute Diseases; in such the Dyet which he ordered was a *Ptisan* of Barley. *Ptisan* properly was a *Pollen*, Paste, or

[q] De morbis lib. 1. [r] De medicis lib. [s] Lib. 5. Epidemicorum.

or Jelly of boil'd Barley, which he order'd to be mixt in certain quantities of Water, allowing his Patients ſeldom above two *Cotylæ* or *Heminæ*, that is little more than a Pint, once, ſeldom twice a day. *Ptiſans* were made of other Grains after the ſame manner, and adminiſtred in due quantities in proper caſes.

Becauſe his management of acute Diſtempers conſiſted chiefly in ordering proper Diet and Liquors, I ſhall give ſome few inſtances of the Liquors which he uſed on theſe occaſions. Moſt commonly he does not weigh but meaſure his Drugs.

[t] A *Chœnix* of *Attick* Figs, and boil them in two *Congii* of Water, ſtrain it, and drink half a *Hemina* at a time.

I. e. ℞ 1 $\frac{1}{2}$ Pint of *Attick* Figs, and boil in 14 $\frac{1}{3}$ Pints of Water, ſtrain it, and drink about a quarter of a Pint at a draught.

[t] Half of *Hemichœnix* of decortiated or ſhelled Barley, in four *Heminæ* of Water, till it boils over twice or thrice.

℞ $\frac{3}{8}$ of a Pint of ſhelled Barley in a Quart and four Spoonfulls of Water.

He often preſcribes *Hydromel*, which is made of Honey, one part, and Water eight: and Vinegar added made an *Oxymel*.

His decoction of *Lint-ſeed*, which he often uſes, is made after this manner:

[u] An *Acetabulum* of *Lint-ſeed* in ten *Heminæ* of Water boil'd to one half, and let ſtand till the Liquor grows ſenſibly mucilaginous.

℞ Somewhat more than three Spoonfulls of *Lint-ſeed* boiled in three Quarts of Water into 1 $\frac{1}{2}$ Pint.

[x] Of the *Achillean* or great Barley dried and decortiated, the quantity of a *Hemina*, after it is well waſhed, boil it in a *Congius* of Water into one half, and give it to drink cold.

℞ A little more than half a Pint of great Barley, boil it in ſeven Pints of Water into one half.

[t] De natura mulicbri. [u] De morbis lib. 3. [x] Ibid.

[y] Of *Æthiopick Cummin* $\frac{1}{12}$ of a *Hemina*, boil it in three *Congii* of Water in a Veſſel cloſely luted, into a third part, let it be drunk cold in every kind of Fever.

℞ A large Spoonful of *Æthiopic Cummin* in about eleven Quarts of Water, into a third part.

The *Cummin* here bears a ſmall proportion to the water, and is certainly only meant to correct the crudity of it as a Spice, ſo it is only a manner of giving Water in a Fever.

[y] A *Hemina* of *Ptiſan* boil'd in a *Congius* of Water, into one half, to the ſtrain'd Liquor add a little *Apium*, let it be drunk cold.

℞ A quarter of a Pint of the *Ptiſan* of Barley in about ſeven Pints of Water boiled into one half.

The *Ptiſan* of Barley was prepared after this manner; the Barley was firſt ſteep'd in water till it ſwell'd, afterwards dried in the Sun, then beat till the husk was taken off, and ground; the Meal was boil'd in Water, and expoſed to the Sun, and when dry, ſhut up for uſe.

White Raiſins without the Stalks a *Hemina*, of Roots of *Pentaphyllum* bruis'd one handful, boil'd in twenty *Heminæ* of Water into one half.

℞ White Raiſins ſomewhat above half a Pint, of Roots of *Cinquefoil* bruiſed, one handful, boiled in eleven Pints of Water, into one half.

The white of four Eggs beat in a *Congius* of Water

℞ That is ſeven Pints of Water.

He recommends this Drink as cooling and laxative.

[y] Ibid.

Half

Half a *Chœnix* of Barley Meal, and a *Pugil* of *Adianthus* in a *Congius* of Water.

℞ Three quarters of a Pint of Barley Meal, a *Pugil* of *Maiden-hair* in seven Pints of Water.

The Pulp of a ripe Cucumber without the rind in Water is recommended as an excellent Medicine both to quench Thirst and provoke Urine.

Three handfuls of *Apium*, two *Pugils* of *Pulegium*, boil'd in ten *Heminæ* of Vinegar [*i. e.* six Pints] into one third part, mixt with Honey, and then to be drunk with Water, putting in one *Pugil* of *Adianthum*, is recommended as a Diuretick and Laxative.

This is an *Oxymel* to be mixt with Water.

He orders all the Liquors which are given to feverish Patients to be expos'd to the Air in a clear Night, and then to be drunk cool, except by such as were inclined to a Looseness. These Decoctions are most of them to be found in his Book *de internis Affectionibus*.

There is one very strange draught prescribed for a short-breath'd man, and ordered to be drank off at one draught; half a Gallon of *Hydromel* with a little Vinegar: this seems to be prescribed by way of Exercise as well as Medicine, and it encreaseth some Suspicion that the Book *de internis Affectionibus*, as well as that *de Affectionibus*, was not writ by *Hippocrates*: but that is a consideration I do not enter into, because all the Books published in his name, are at least wrote by the ancient Authors.

[a] *Hydromel* and Vinegar, three *Heminæ*, are given for a Vomit in bilious cases.

Somewhat more than a Pint and a half.

[b] He orders sometimes his Patient to eat Figs before his Vomit, and to vomit till he brings up the Figs, which come up last of all.

[c] There

[a] De affectionib. lib. [b] De internis affection.

[c] There is nothing more ſurprizing than the great quantities in which he preſcribes Milk. Aſſes Milk to be drank to the quantity of twelve *Heminæ*, and if the Patient can bear it, to ſixteen, that is from ſeven to nine Pints.

[d] He often orders that quantity of Aſſes Milk boil'd to purge his Patient, particularly in *Epilepſies*.

[e] He preſcribes Goat's Milk to the quantity of four *Heminæ*, or a Quart, with about $\frac{1}{2}$ of a Pint of *Hydromel*, and the ſame quantity of it with ten Grains of the juice of *Laſer*, or *Aſſa fœtida*, and ſome Honey, in an *Hepatical* Diſtemper.

[e] Two *Congii*, or above fourteen Pints of Cow's Milk in Diſeaſes of the Spleen. *Le Clerk* imagines that this quantity was not to be drank in a day; but I wonder that any man who had read *Hippocrates* could think ſo, becauſe he has ſeveral times the word τῇ δ' ὑστεραίῃ: [e] particularly he ſaith in one place, let him drink the next day eight *Heminæ* of Aſſes Milk with a little Honey, and if that cannot be had, three *Semicongii* or eleven Pints of Goat's or Cow's Milk. And in another place he ſaith, let him drink the next day a *Congius* or ſeven Pints of Aſſes Milk.

I have often thought that our preſcribing Aſſes Milk in ſuch ſmall quantities is injudicious, for undoubtedly with ſuch as it agrees with, it would perform much greater and quicker effects in greater quantities. I take it for granted that the Patients who drunk ſuch great quantities, took no other Food.

He was very nice in the choice and quantity of his Wine, moſtly white, but ſometimes what he called black, in ſome caſes ſweet Wines, and in ſome caſes auſtere. Sometimes he ordered a Patient a Cup of two *Heminæ*, or a full Pint of Wine, when going to ſleep.

[f] He preſcribes ſometimes very large Doſes of Powders, but very effectual for the intention, ſuch as of *Sulphur*, *Cardamum*, *Rue*, *Æthiopick Cummin*, each the quantity of a Bean, which will make very near a *Drachm*, to be taken in an *Aſthma*.

Another

[c] De ratione victus, &c. [d] Ibid. [e] De internis affection. [f] De Morbis mulier. lib. 1.

Another prescribed in hard Labour: [f] Of *Æthiopic Cummin* as much as you can hold in three Fingers, of Anniseed and *Sesili* as much as you can hold in five or six Fingers. I cannot tell what he means by six Fingers, unless it be to denote the different Proportions of the Ingredients. He orders in the same case the Pæony Root or Seed a *Concha* or about three Spoonfuls.

[g] He is no less exact in prescribing the Exercises of his Patients, ordering some of them to walk eighty *Stadia* in a Day, which is about nine *English* Miles, which he divides after this manner, thirty *Stadia* in the Morning, thirty before Supper, and twenty after. I think this as necessary a Prescription as any; and if Patients would be obedient, it might do more good than all the others.

A short Account of the Prescriptions of Celsus.

CElsus was a very cautious and sparing giver of inward Medicines, he puts the strength of his Cure in most cases upon Diet, Bathing, Unction, Frictions, and Exercise.

[a] He vomits often only with warm Water, and rather in the Winter than Summer, chiefly People that are bilious, and fat rather than lean; great Eaters and ill Digesters: [b] yet he gives the white *Hellebor* for a Vomit in one sort of Madness, and the black for a Purge in another, without naming the Dose. [c] He saith Vomits even repeated are not dangerous in *Hæmorrhagies*. He thought Autumn the properest Season to give white *Hellebor*.

He

[f] De morbis Mulier. lib 1. [g] De inter. affect. [a] Lib. 1. c. 3. Vomitus utilior est hyeme quam æstate. nam tum & pituitæ plus, & capitis gravitas major subest. Inutilis est gracilibus, & imbecillum stomachum habentibus: utilis est plenis & biliosis omnibus, si vel nimium se repleverunt, vel parum concoxerunt.

[b] Lib. 3. c. 18. In tristitia nigrum veratrum dejectionis causa, in hilaritate album ad vomitum excitandum dari debet. [c] Lib. 4.

He was no great Friend to Purging and Clisters, and blames the Ancients for their too frequent use of them: You may see the Passage at large[d]. He was for mixing [e] *Aloes* with all Purges.

[f] As for *Opiats*, he seems to allow a Decoction of the *Poppy* or *Henbane* in Water, at least by quoting the Example of other Practitioners.

[g] He condemns Blood-letting in Children, old Men, and Women with Child, but allowing at the same time many Exceptions from such a general Rule. He names several cases very pertinently, in which it was absolutely necessary to let blood; gives proper Cautions against Accidents of pricking a Tendon or Artery: As to the Quantity, he saith the Vein should be stop'd before the Patient faints; he orders bleeding from the same Vein the next Day: He gives one Precept about Bleeding which seems extraordinary, that when the Blood is good, which is to be judged by the colour, that immediately the Vein should be stop'd; but he adds, that this is a Caution which a skilful Physician does not want, because he knows the proper cases before hand.

[h] He uses the *Lactuca marina* and *Squils* as Diureticks in Dropsies.

[i] I don't find he gives the second inwardly, but uses the Decoction of it as a Fomentation. He mentions several other Diureticks besides these.

[k] He prescribes Milk in Consumptions without naming the Dose, and condemns it as a Poison in Head-aches, acute Fevers attended with Thirst, or where the Urine is bilious.

[l] In Fevers he seems to approve raising the Sweat by cool Liquors, and tells you that after *Hippocrates* there was one *Petro* who covered up his feverish Patient with warm Cloths; and when the Fever

[d] Lib. 2 c. 12. [e] Ibid. Sed medicamenta stomachum fere lædunt, ideoque omnibus Catharticis Aloë miscendum est.

[f] Lib. 3. c. 18. Quidam somnum moliuntur potui dando aquam in qua Papaverus aut Hyoscïamus decocta sit.

[g] Lib. 2. c. 10. [h] Lib. 3. c. 21.

[i] Lib. 2. c. 31. [k] Lib. 3. c. 22. Lac quoque, quod in capitis doloribus, & in acutis febribus, & per eas facta nimia sitis, sive præcordia tument, sive biliosa urina est, sive sanguis fluxit, pro veneno est: in phthisi tamen, sicut in omnibus longis difficilibusque febribus, recte dari potest. [l] Lib. 3. c. 9. —— Et intra hæc omnis medicina erat.

Fever began a little to decline, gave them cold Water to drink till he provoked Sweat; if he did not ſweat at firſt, he gave him ſtill more cold Water till he obtain'd his purpoſe: When he was out of his Fever, he gave him Hog's Fleſh and Wine: if he was not ſtill quite cur'd, he purg'd him with Salt Water, and this was the whole of his Practice.

[m] He is very preciſe in preſcribing his Exerciſes and Frictions, of which he deſcribes the natural Effects with great Judgment. He preſcribes from fifty Frictions to two hundred, according to the ſtrength of the Patient; I ſuppoſe he means ſo many Strokes with the rubbing Inſtrument.

As for the Doſes of his Medicines, they ſeem to be reaſonable, except where the Text is corrupted: for Example.

A Confection againſt the Cholick.

[n] *Coſti, Aneſi, Caſtorei, ſingulorum* P. *denariorum* III. = dr. 3. gr. 7½.

Petroſelini denariorum III.

Piperis longi & rotundi, ſingulorum P. II. = dr. 2. gr. 5.

Papaveris lacrymæ, junci rotundi, Myrrhæ, Nardi, ſingulorum P. VI *. = dr. 6. gr. 15. *quæ melle excipiuntur. Id autem & devorari poteſt, et ex aqua calida ſumi.*

In this the Opium is about one ſeventh part of the ſolid Ingredients.

Againſt an Aſthma.

Honey, Galbanum and Turpentine mixt, the Bigneſs of a Bean: but there follows after that a Receipt in which the Text muſt be corrupted.

Sulphuris

[m] Lib. 2. c. 18. [n] Lib. 4. c. 14.

Sulphuris ignem non experti pondo & quadrans. = Pou. 1. Oun. 1. dr. 4. scr. 2. gr. 5½.

Abrotoni pondo in vini cyatho teruntur, = Ou. 10. dr. 7. scr. 2. gr. 5. *idque tepefactum sorbetur.*

It's plain from the first Inspection that such a Quantity of either of the Ingredients cannot be given at once, far less out of two spoonful of Wine, therefore undoubtedly the numbers are omitted, and *Pondo* is only put at length as P. in other Receipts, and the * with the number wanting.

Antidotum Ambrosia nominatum, quod Zopyrus Ptolemæo Regi composuit.

Costi, Thuris masculi, singulorum P. V.* = dr. 5. gr. 12.
Piperis albi P.* = dr. 1. gr. 2½.
Floris Junci rotundi P. II. * = dr. 2. gr. 5.
Cinnamomi P. III. * = dr. 3. gr. 7½.
Casiæ nigræ P. IIII. * = dr. 4. gr. 10.
Croci Cilicii P. * IIII = dr. 4. gr. 10.
Myrrhæ quam Stactem nominat P. V. * = dr. 5. gr. 12.
Nardi Indici P. * V. = dr. 5. gr. 12.

Quæ singula contrita melle cocto excipiuntur: deinde ubi utendum est, id quod Ægyptiæ fabæ magnitudinem impleat in potione vini diluitur.

Catapotium ad somnum accersendum.

Papaveris lachrymæ, Galbani, singulorum P. I.* = dr. 1. gr. 2½.
Myrrhæ, Castorei, Piperis, singulorum P. II. * = dr. 2. gr. 5.
Ex quibus quod Ervi magnitudinem habet, satis est devorasse.
Here the Opium is one eighth part of the Ingredients.

Cata-

MUSEUM PUBLI

Catapotium valentius ad Somnum.

Alterum stomacho pejus, ad somnum valentius, ex his fit, Mandragoræ P. *. *Apii seminis, item Hyosciami seminis, singulorum* P. IIII. = * dr. 4. gr. 9¼. *quæ ex vino teruntur.*

Catapotium ad plurimos dolores, per somnum leviendos.

Silis, Acori, Rutæ sylvestris, seminis, singulorum P. I. * = dr 1. gr. 2½.

Castorei, Cinamomi, singulorum P. II. * = dr. 2. gr. 5.

Papaveris lachrymæ, Panacis, Radicis Mandragoræ, Malorum aridorum, Junci rotundi Floris, singulorum P. II. * = dr. 2. gr. 5.

Piperis grana LVI. = scr. 2. gr. 2½.

Hæc per se contrita; rursus instillato subinde passo, simul omnia teruntur, donec crassitudo sordium fiat: ex eo paulum aut devoratur, aut aqua diluitur & potui datur:

The Opium is above a ninth part of the Ingredients, besides the *Passum.*

Passum is a Wine made of dry'd Grapes, in all appearance not after our manner of making made Wines. It was strong and sweet.

Catapotium ad inducendum somnum, quod vulva dolens prohibuit.

Croci P. II. * = dr. 2. gr. 5.
Anisi, Myrrhæ, singulorum P. I. * = dr. 2. gr. 2½.
Papaveris lacrymæ, P. IIII * = dr. 4. gr. 9¼.
Cicutæ seminis P. VIII. * = Oun. 1. gr. 19½.

Miſcentur, excipiunturque vino vetere; & quod lupini magnitudinem habet in tribus cyathis aquæ diluitur. Id tamen in febre periculoſe datur.

The Opium is a fourth part of the Ingredients.

Catapotium Athenionis ad Tuſſim.

Myrrhæ, Piperis, ſingulorum P. I. * = dr. 1. gr. 2¼.
Caſtorei, Papaveris lacrymæ, ſingulorum P. I. * = dr. 1. gr. 2¼.
Quæ ſeparatim contuſa, poſtea junguntur, & ad magnitudinem fabæ noſtræ, bina Catapotia mane, bina noctu dormituro dantur.

The Opium is a fourth part of the Ingredients.

It is ſtrange that the Quantity of the Doſe of an Opiat ſhould not be weighed as well as the Ingredients: it is often deſcribed by the bigneſs of a Bean, and there are three ſorts of Beans mention'd, the *Ægyptian* Bean, the *Roman*, and the *Lupine*. The *Ægyptian* Bean muſt have been very ſmall; for in the Mithridate, as deſcrib'd by *Celſus*, he determines the Doſe either by an *Ægyptian* Bean or by an *Ervum*, a ſort of a Vetch or ſmall Pea; beſides, the Bean muſt have been near round, becauſe it ſerves for the Model of a Pill; and it is a common Obſervation of Beans, the leſs, the rounder. The *Phaſeolus* or Kidney Bean is commonly call'd the *Roman* Bean, as well as the *French* Bean; but if the Bean were very ſmall in the *Catapotium Athenionis*, the Opium making the fourth part of the Ingredients, four ſuch Doſes in twenty four Hours would be a very large Quantity. A Doſe only of four Grains would make a Grain at a time, and therefore I am apt to think that there are ſome Ingredients wanting in the Compoſition. The manner of the Ancients is to aſſociate Opium, with other warm Ingredients.

Cata-

Catapotium Heraclidis Tarentini ad Tussim & Somnum.

Croci P. I. * = dr. 1. gr. 2½.
Cinnamomi, Castorei, Papaveris lachrymæ, singulorum P. I. * = dr. 1. gr. 2½.
Piperis longi, Costi, Galbani, singulorum P. * = dr. 1. gr. 2½.
The Opium is one eighth part of the Ingredients.

Colicæ Cassii Medici.

Croci, Anisi, Castorei, singulorum P. III. * = dr. 3. gr. 7½
Petroselini P. IIII. * = dr. 4. gr. 10.
Piperis & longi & rotundi, singulorum P. V. * = dr. 5. gr. 12.
Papaveris lacrymæ, Junci rotundi, Myrrhæ, Nardi, singulorum P. VI. * = dr. 6. gr. 14.
Quæ melle excipiuntur: id autem & devorari potest, & ex aqua calida sumi.
The Opium is about one eighth part of the Ingredients.

Adversus difficultatem Urinæ.

Piperis longi, Castorei, Myrrhæ, Galbani, Papaveris lacrymæ, Croci, Costi, unciæ singulæ. = dr. 7 gr. 17½.
Styracis, Resinæ Terebinthiæ pondo sextantes = Oun. 1. dr. 6. scr. 1. gr. 14⅔.
Mel Absinthi cyathus. (somewhat above two Spoonfuls.)
Ex quibus ad magnitudinem fabæ Ægyptiæ mane, & cœnato dari debet.
The Opium is an eleventh part of the Ingredients, besides the Honey.

Some Examples of the Manner of Prescribing, and Doses of Medicines, taken from Scribonius Largus.

SCribonius Largus makes use of the same Weights and Measures with *Celsus*. In the following Examples I shall take some Prescriptions of several kinds, following the order of the Book, and reduce them to our Weights and Measures.

A Prescription for a Snuff to be taken in a violent Head-ach.

Veratri albi, castorei, struthii, quod est radix lanaria, piperis albi, singulorum * P. I. *hæc contusa tenuiter forato cribro transmutantur.*

℞ Of white Hellebor, Castor, Struthium, (which is a Root us'd by the Wool-dressers) white Peper, each one Drachm, 24 Grains.

The *Struthium* is a Plant mention'd by *Dioscorides*, *Columella*, *lib.* XI. *cap.* 11. who saith that the *Tarentine* Sheep ought to be washed with it. *Pliny*, *lib.* XXIV. *cap.* 11. saith that the Dyers made use of a Plant, in preparing their Wool, which the *Greeks* call *Struthion*, which he saith, *lib.* XXV. *cap.* 5. was good for Snuff. The Plant does not grow in this Country.

In

In Epilepsies,

Thymi albi * P. III. *ex aceti cyathis tribus, & mellis boni pondo uncia: ut dilutum jejunus bibat per dies quadraginta quinque; sed quum biberit citatus ambulet millia passuum minime dudum.*

℞ Of white Thyme three Drams seven Grains, of Vinegar seven Spoonfuls, or a quarter of a Pint and a Spoonful, and of good Honey seven Drachms, seventeen Grains: The Patient to drink this in a Morning for forty five Days, walking fast a Space, which wants an hundred and twelve paces of two *English* Miles.

The white Thyme is mention'd by *Gaspar Bauhen Pinac. lib.* VI. §. 4. he saith that it is *grave olens,* ill-scented or stinking.

A Collirium *for an* Epiphora *or Inflammation of the Eyes from a watery Humour.*

Aloes Indicæ * P. IIII. *Croci* * P. II. *Opii* * P. I. *Gummis* * P. IIII. *Plantaginis succi cyathos tres.*

℞ Of *Indian* Aloes four Drachms ten Grains, Saffron two Drachms five Grains, Opium one Drachm 2½ Grains, Gum *Arabick* four Drachms ten Grains, Juice of Plantane seven Spoonfuls.

When *Gummis* is put by it self, it means Gum *Arabick,* in the Author it is often wrote *Cummis* with a *c.*

A sharp Collirium *to take Specks off the Eye, and against the Asperity of the Eye-lids.*

Æris usti * P. IIII. *Thuris Arboris Corticis* * P. IIII. *Ammoniaci Guttæ* * P. IIII. *Commis* * *pond.* IIII. *Teruntur ex aqua pluviali.*

℞ Calcined Copper, the Bark of the Incense Tree, clear Gum *Ammoniac*, Gum *Arabic*, of each four Drachms ten Grains.

Galen saith that the Bark of the *Thuriferus* Tree is more astringent than the Incense it self.

A Remedy against Spitting of Blood and an obstinate Cough.

* *Aluminis fissi* P. * VI. *Opii* P.* I. *aqua exigua Opium diluitur, miscetur alumini ante trito; fiunt globuli ciceris amplitudinis: dantur jejuno ante cibum quaterni aut quini.*

℞ Of Alum six Drachms fifteen Grains, Opium one Drachm two Grains and a half. Let the Opium be dissolved in fair Water, and mix the Alum powdered, make it up in Pills of the Bigness of Chicken Peas or Vetches, and let the Patient take four or five of them in the Morning fasting

A Remedy against an Asthma.

Sulphuris vivi P. * I. *Nitri* P. * *selibra, abrotani quod tribus digitis comprehendi possit. Hæc contunduntur, & teruntur curiose.*

℞ Live Sulphur one Drachm two Grains, of Nitre ʒ 1 Grains, Southernwood as much as can be held in three Fingers. These

contun-

Quum opus est, dantur ex his cochlearia duo cum duobus cyathis aceti calidi jejuno. (The *libra* is to be taken away, and it must be read * S.

Ingredients must be powdered nicely, and two Spoonfuls of the Medicine given in seven Spoonfuls of warm Vinegar to the Patient fasting.

Tho' all Authors correct this Reading as I have done, yet I think it would be better read of a Pound than a *Denarius*; for the whole Composition as it stands will hardly make two Spoonfuls.

Another Medicine for the same Purpose, which the Author saith is good against a Palsy, Dropsy, or Disease in the Spleen.

Bryoniæ, id est albæ vitæ radicis P.*XII. *Iris Illyricæ* P.*XII. *Ammoniacæ guttæ* P * XII. *Asparagi radicis* P * VI. *scillæ bulbi crudi ex interiore parte* P. * XII. *Tragacanthi* P. * VI. *Mel miscetur contusis & tritis donec ceræ mollis habeat temperaturam. Inde cum opus est datur* P. * I. *cum aquæ mulsæ cyathis tribus vel quatuor.*

℞ Of the Roots of white Briony, *Illyrian Iris*, Gum *Ammoniac* in clear drops, of each thirteen Drachms five Grains, Roots of Asparagus six Drachms thirty two Grains and an half, of the inward part of Squill thirteen Drachms five Grains, or one Ounce, five Drachms, five Grains, Gum Tragacanth six Drachms, thirty two Grains and a half, or six Drachms, one Scruple, twelve Grains and a half. To these Ingredients bruised and powdered add as much Honey as makes the Consistence of soft Wax. The Dose is one Drachm, two Grains, drinking after it six or eight Spoonfuls of Hydromel.

Seve-

Several Catapotia.

A *Catapotium* is a general Name for a Medicine that is ſwallowed ſolid without being diſſolved, and moſt commonly made up in Pills.

A Catapotium *for a Cough with Spitting.*

Croci pondo unciæ, Myrrhæ P. ſextantis, Opii pond. quadrantis. Contunditur Crocum, præſcribatur, contuſæ Myrrhæ Opium admiſcetur aqua exigua dilutum. Poſtea adjicitur Crocum, & cum in unum bene mixta ſunt, finguntur pilulæ ervi magnitudinis: dantur in nocte ternæ vel quaternæ.

℞ Of Saffron ſeven Drachms, ſeventeen Grains, of Myrrh double the Quantity, of Opium trible. To Myrrh bruiſed add the Opium diſſolved in a little Water, afterwards the Saffron; after it is bruiſed and ſtrained, and made up in Pills of the Bigneſs of a ſort of Vetch, three or four of them in a Night.

What is remarkable in this Pill is, that the Opium is juſt one half of the Ingredients; the Pill can hardly be leſs than two Grains, conſequently the Patient takes a Grain of Opium at a time, three or four times in a Night.

A Catapotium *for a dry Cough.*

Myrrhæ, Piperis, Caſtorei, Galbani, Storacis, Opii, ſingulorum idem pondus. Caſtoreum & Pi-

℞ Myrrh, Peper, Caſtor, Galbanum, Storax, Opium, equal parts. Bruiſe and ſift the Ca-

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per contunduntur & cribrantur: deinde Myrrhæ ante tritæ cæteris contusis æque admiscentur. Ubi omnium unitas mortario facta est, melle despumato medicamentum comprehenditur: deinde formantur pilulæ viciæ magnitudinis. Dantur ternæ vel quaternæ in noctem.

stor and Peper, and with the rest of the Ingredients Powdered, and Honey *q. s.* make Pills of the Bigness of a Vetch, of which three or four to be taken in a Night.

The Quantity of Opium is less in these Pills in the proportion of two to five.

Another Catapotium *for an old Cough.*

Styracis P. * VI. *Myrrhæ* P. * II. *& Victoriati, Opopanacis* P. * II. *Iris Illyricæ* P. * II. *Galbani* P. * II. *resinæ terebinthiæ pon.* * V. *alterci Seminis* P. * I. *Nitri* P. * I. *Piperis Albi* P. * I. *Opii* P. * I. *Irim, altercum, piper contundere oportet & cribrare, nitrum mortario terere, & cetera pilo commiscere, & postea hæc eis adjicere atque facere Catapotia magnitudinis fabæ. Inde terna vel quaterna in noctem dare ad inflationes in ipsâ distentione cum aquæ calidæ cyathis tribus.*

℞ Styrax six Drachms fifteen Grains, Myrrh two Drachms one Scruple and sixteen Grains, (a *Victoriatus* is half a *Denarius*) Opopanax two Drachms five Grains, *Illyrian* Iris and Galbanum each two Drachms five Grains, Turpentine five Drachms twelve Grains and a half, Henbane seed, Nitre, white Peper and Opium each one Drachm two Grains and a half. The Iris and the Henbane Seed and the Peper must be pounded and sifted, and the Nitre powdered in a Mortar, and the rest of the Ingredients, being mixt with a Pestle, must be added to it, and made up into the Bigness of a small Bean, three or four of them to be taken in a Night.

The following Receipts are not translated, but the Doses are marked.

Pastills *or* Lozenges *for a Cough.*

Myrrhæ Troglodytis pon. * VI, = dr. 6, gr. 15.
Croci P. * V. = dr. 5, gr. 12.
Opii P. * IV. = dr. 4, gr. 9.
Thuris P. * V. = dr. 5, gr. 12.
Alterci albi seminis P. IV. = dr. 4, gr. 9.
Apollinaris herbæ radicis corticis P. * IV. = dr. 4, gr. 9.
*Contunditur hic cortex per se, & cribratur tenui cribro: deinde Crocum, postea Altercum, Myrrha, Thus, quibus miscetur Opium pridie aqua maceratum: subinde aquæ exiguum adjicitur, donec fingi pastilli possint pond * victoriati* = half a *Denarius*, or scr. 1, gr. 11.

Altercus is the *Henbane*, *Apollinaris herba* a *Mandrake.*

Antidotos Hiera Paccii Antiochi ad universa corporis vitia, maxime Lateris, & ad Podagram.

Stæchados, Marrubii, χαμαίδρυς, *quæ herba similiaquercus folia habet, Agarici, Cucurbitulæ silvestris, quam* κολοκυνθίδα *appellant, singulorum* * P x. = dr. 10, scr. 1, gr. 4.
Opopanacis, Sagapeni, Petroselini, Terræ mali, Piperis albi, singulorum * P. v. = dr. 5, gr. 12.
Cinnami, Nardi spicæ, Myrrhæ, folii, Croci, singulorum * P. IIII. = dr. 4, gr. 9.

In unum omnia ponderata contunduntur & cribrantur: præterea Opopanaces & Sagapenum, hæc enim mortario teruntur, adjecto melle tenui

tenui, id est, quàm liquidissimo: deinde cæteris miscentur, quæ & ipsa recipere debent tantum mellis, quantum satis erit ad comprehendenda, & continenda ea. Reponitur medicamentum vase vitreo.

Ad hoc * P. I. *vel victoriati datum, ex aquæ cyathis duobus frigidæ.* = dr. 1, gr. 2 ½, or scr. 1, gr. 11.

Terræ malum is the *Aristolochia.* The *Greek* words, which are still preserved in the receipt, is a great presumption for the common opinion, that the Author wrote in *Greek*, tho' by his name he was a *Roman* by Birth. It seems the Translator was not quite sure of the meaning of some words.

Scribonius tells you that the Inventer of this Medicine got a great deal of money by it, that he did not divulge it in his own life-time, that *Scribonius* had found the Receipt in a Letter wrote to *Tiberius*, and that he never was able to procure the Receipt during the life of the said Emperor.

Against Pain and Wind in the Stomach.

Palmarum * P. XI. = dr. 11, scr. 1, gr. 7.

Anethi * *pondo* IV. = dr. 4, gr. 9.

Croci * P. *duum, Git* * P. *duum, & Asari* * P. *duum.* = dr. 2, gr. 4 ½.

Murti nigræ baccarum * *Pond.* IV. = dr. 4, gr. 9.

Juniperi grana numero viginti. Contunduntur seorsum omnia, & in unum miscentur: deinde fiunt pastilli * P. I. = dr. 1, gr. 2 ½, or scr. 1, gr. 11. *aliis victoriati.*

Dantur jejuno ex aquæ cyathis quatuor [about ten Spoonfuls] *aut ex Cretico musto, quod est passi genus.*

Git is the *Melanthium* or the *Nigella*, the seed of which was reckon'd as a sort of Pepper by the Ancients.

Paſtils *to be uſed in a* Cliſter, *in a Diſeaſe which the Author calls a Cancer in the Bowels.*

Chartæ combuſtæ cineris * P. XXX. = Oun. 3, dr. 7, gr. 13 $\frac{1}{2}$.

Calcis vivæ * *pondo* XXIV. = oun. 3, ſcr. 2, gr. 18 $\frac{7}{9}$.

Ἀρσενικοῦ, *quod eſt Auripigmentum* * P. XII. = oun. 1, dr. 4, ſcr. 1, gr. 9 $\frac{3}{4}$.

Sandaracæ * P. *ſex.* = dr. 6, gr. 24 $\frac{7}{8}$.

Hæc trita vino conſperguntur, in quo roſa & lentes prius incoquuntur, ut poſſint fieri paſtilli * P. *duum aut unius.* = dr. 2, gr. 4 $\frac{9}{10}$, or dr. 1, gr. 2 $\frac{9}{20}$.

This Receipt, if I rightly remember, is in *Marcellus*, who has copied it from the Author. *Scribonius* ſaith it is blamed, but only by ignorant people, becauſe it is cauſtick.

A Remedy for the *Cholick.*

	Oun	Dr.	Scr.	Gr.		
Apii ſeminis P, ſelibram	5,	7,	1,	5 $\frac{5}{7}$	$\frac{1}{2}$	12,
Aneſi P. quadrantem	2,	7,	2,	2 $\frac{6}{7}$	$\frac{1}{4}$	6,
Caſtorei P. ſextantem	1,	6,	1,	12 $\frac{2}{7}$	$\frac{1}{6}$	4,
Myrrhæ P. quadrantem	2,	7,	2,	2 $\frac{6}{7}$	$\frac{1}{4}$	6,
Spicæ Nardi Indicæ P. ſextantem,	1,	6,	1,	12 $\frac{2}{6}$	$\frac{1}{6}$	4,
Opii P. quadrantem	2,	7,	2,	2 $\frac{6}{7}$	$\frac{1}{4}$	6,
Croci P. ſeſcunciam		7,	2,	15 $\frac{5}{7}$	$\frac{1}{9}$	3,
Piperis longi, pon. ſextantem	1,	6,	1,	12 [illegible]	$\frac{1}{6}$	4,
Piperis nigri ſextantem ſemunciam	2,	2,	0,	10 [illegible]	$\frac{5}{24}$	5,
Petroſelini P. ſextantem	1,	6,	1,	12 $\frac{2}{7}$	$\frac{1}{6}$	4,
Schœni P. ſeſcunciam		7,	2,	15 $\frac{5}{7}$	$\frac{1}{8}$	3,

Hæc omnia contuſa cribrata, melle Attico decocta miſcentur. Datur ex hoc medicamento quantum nux Abellana media patet, ex aquæ cyathis tribus calidæ.

I have ſet down in this long Receipt the true quantities reduced to our Meaſure, tho' the proportion of the Ingredients is ſufficient

ficient towards the making up of the Medicine, which are set down both in the Fractions of a *Roman* Pound and in Integers. It was a Receipt of the famous *Cassius*, whom *Celsus* calls the most ingenious Physician of his Age. *Galen* has the same Receipt, but differing a little in the proportion of the Ingredients.

A Remedy against the Dropsy.

Vitis albæ Radicis * P. XX. = oun. 2, dr. 4, scr. 2, gr. 9.

Cocci Cnidii * P. IV. = dr. 4, gr. 9.

Scillæ bulbi cocti detracta exteriore parte * P. X. = oun. 1, dr. 4, scr. 1, gr. 9½.

Myrrhæ * P. VIII. = oun. 1, gr. 18.

[a] *Cymini cyathis tribus,* [b] *Anesi cyathis tribus,* [c] *vini Falerni sextariis duobus,* [d] *passi sextario uno. Præter myrrham, omnia contusa, non cribrata, macerantur passo & vino, nocte & die: postridie colatur liquor, cui myrrha trita admiscetur, a quo cyathus datus a balneo alternis diebus, singulis adjectis cyathis, donec profectus intelligatur.*

The Dose is above two Spoonfuls every other day, adding as much till it has its effect.

The Medicine of Julius Bassus *against the Cholick.*

Spicæ Nardi, Costi, Piperis albi, Piperis nigri, Piperis longi, Myrrhæ, Opii, Apollinaris radicis, & Cinnami, Asari, Acori, Thuris, Brassicæ seminis, Castorei, singulorum * P. XII. = oun. 1, dr. 4, scr. 1, gr. 9⅔.

Opopanacis * P. X. = oun. 1, dr. 2, scr. 1, gr. 4⅔.

Stœchadis, Dauci, Amii, singulorum * P. XVIII = oun. 2, dr. 2, scr. 2, gr. 4.

Seselis Cretici * P. XXIV. = oun. 3, dr. 0, scr. 2, gr. 18⅔.

Mel Atticum miscetur, datur non plus quam * P. *aut Victoriati.* dr. 1, gr. 2½, or scr. 1, gr. 11¼.

Ceterum

[a] *Seven Spoonfuls.* [b] Idem. [c] *two* ⅞ *Pints.* [d] *one* ⅞ *Pint.*

Ceterum prout cujusque vires postulabunt, dummodo infra hoc pondus ex aquæ calidæ cyathis tribus [about seven Spoonfuls.] *in noctem secundum cœnam. Hæc potio etiam febricitantibus tuto datur: sed cœliacis in ipso dolore prodest.*

This *Julius Bassus* was either Esquire of the Body, or Physician in ordinary to *Nero*, as appears by an old Inscription. BASSUS NERONIS CÆSARIS CORPORE CUSTOS. NATIONE FRISIUS.

Ovilis lactis sextario, = one Pint, five Spoonfulls.
Si quis adjiciat Cnici purgati * P. IV. = dr. 4, gr. 9.
Mollit & ventrem.
Quidam tribus Heminis vini = 1 ¼ Pints.
Ut Aloes victoriati pondo, = scr. 1, gr. 11.
Vel idem pondus duobus tribusve sextariis vini [two or three pints] *& ita totum per partes aquæ mixtum bibunt. Videtur autem vinum vetustius, ventremque cum eo satis mollit. Facit autem Aloe per se Victoriati vel* * P = [scr. 1, gr. 11, or double that] *ex aquæ cyathis tribus* [seven Spoonfuls] *frigidæ vel calidæ perductæ.*

The Doses of the *Aloes* seem to be very small in these Infusions, yet I believe the Medicine would attain its effect in being lenitive. The *Cnicus* or *Carthamus* is in quantity sufficient.
Aloes victoriati pondus = scr. 1, gr. 11.
Colophoniæ victoriati pondus = scr. 1, gr. 11.
Una teruntur, adjicitur mellis quod satis est ad colligenda ea, datur ex aquæ calidæ vel frigidæ cyathis quatuor [about seven Spoonfuls of Water] *Hoc medicamentum stomachum non corrumpit.*

Purging Pills mightily commended by the Author for being grateful to the Stomach.

Colophoniæ * P. VIII. = oun. 1, gr. 19 ⅕.
Bdellii * P. duum = dr. 2, gr. 4 $\frac{8}{10}$.
Commis * P. unius = dr. 1, gr. 2 $\frac{4}{10}$.

Hæc

Hæc trita ſucco Lactucæ colliguntur, & finguntur pilulæ fabæ magnitudinis. Dantur paribus pilulis uſque ad ſeptem, prout uniuſcujuſcunque vires patiuntur.

Admirable Pills.

Colophoniæ * P. III. = dr. 3, gr. 7 ½.
Aloes * P. IV. = dr. 4, gr. 10.
Tragacanthi * P. *duum* = dr. 2, gr. 5.
Hoc pridie aquâ maceratur, poſtero die cæteris admiſcetur. Fiunt inde globuli fabæ magnitudinis. Dantur a tribus uſque ad ſeptem, prout cujuſque vires patiuntur. Stomachum nullo modo vexant.

For a Swelling and Pain in the Bladder, and for those who have difficulty in paſſing of Urine.

Alterci ſeminis, Apii ſeminis, malvæ ſeminis, cucumeris edulis ſeminis purgati, ſingulorum * P. VI. = dr. 6, gr. 14 ⅞.
Amygdalorum dulcium purgatorum, nucleorum pineorum purgatorum, ſingulorum, * P. III. = dr. 3, gr. 7 ½.
Opii * P. I. = dr. 1, gr. 2 ½.
Croci * P. *unius & victoriati, paſſo contuſa conſperguntur. Datur hoc medi-Medicamentum* * P. I. *ex paſſi cyathis duobus & aquæ totidem.* = dr. 1, ſcr. 1, gr. 14.

Some Examples of Preſcriptions taken out of Marcellus.

MArcellus lived under the Reigns of the Emperors *Gratian* and *Theodoſius*; he was an Empyrick, and a mere Collector of Receipts; he often copies them without changing the very circumſtantial

cumſtantial matters of fact related by the Author from whom he takes them. For example, when the Author ſaith he cured by ſuch a Medicine, *Marcellus* ſaith the ſame thing of himſelf. [a] Deſcribing the Remedy of *Antiochus Paccius*, he tells you in the very words of *Scribonius* that he could never get the Receipt till after the death of *Tiberius*, tho' he had taken great pains to diſcover it. But for that very reaſon, that he is a mere Collector and Tranſcriber, he is the more uſeful to our purpoſe in diſcovering the compoſition and doſes of ancient Medicines, of which I ſhall give ſome Examples.

Some of the ancient Phyſicians are not very particular and exact in the Doſes of their purging Medicines, at leaſt in their Writings. I hope *Marcellus* in ſome meaſure ſupplies this defect in his thirtieth Chapter, where he ſpeaks of all Medicines of that kind.

First of Lenitives.

*Mollit alvum, Nitri * ſemiſſis,* = ſcr. 1, gr. 11.
Mixtus cum Reſina Terebinthina, & Avellanæ nucis magnitudine devoratus.

Ovilis lactis ſextario ſi quis adjiciat = A Pint and five Spoonfuls.
Cnici purgati denarios quatuor = dr. 4, gr. 10.
Et diſcoctum ita ebibat, molliet ventrem.
Quidam tribus Heminis vini = 1 ½ Pint.
Adjiciunt Aloes denarii ſemiſſem, = ſcr. 1. gr. 11.
Et ita totum per partes aqua mixtum bibunt, ut molliant ventrem.

Solvit autem utiliter alvum ipſa Aloe per ſe victoriati denarii pondere = ſcr. 1, gr. 11.
Ex aquæ cyathis tribus vel frigidæ = ſeven Spoonfuls.
Vel calidæ epota.

Purgat

[a] Cap. 2. Fecit enim magnos quæſtus ex ea propter crebros ſucceſſus in vitiis difficillimis: ſed ne hic quidem unquam ulli vivus vivo compoſitionem illius oſtendit. Poſt mortem Tiberio Cæſari per libellum ſcriptum data eſt, & per eum in bibliothecis publicis poſita, venit in manus noſtras, quam ante nullo modo extrahere potuimus, quamvis omnia fecerimus, ut ſciremus quæ eſſet.

Purgat bene hæc compositio ventrem,
Aloes denarii semissis = scr. 1, gr. 11.
Colophoniæ denarii semissis = scr. 1, gr. 11.
Unà teruntur hæc, adjicitur mellis quod satis sit ad colligenda ea. Datur ex aquæ callidæ vel frigidæ cyathis quatuor.

Colophoniæ denarii quatuor = dr. 4, gr. 10.
Bdellii denarii duo dr. 2, gr. 5.
Hæc trita lactucæ succo colliguntur, & finguntur pilulæ magnitudine fab , dantur a tribus pilulis usque ad septem, prout cujusque vires patiuntur.

Colophoniæ denarios tres, = dr. 3, gr. 7 ½.
Aloes & Tragacanthi binos = dr. 2, gr. 5.
Hoc pridie aquâ maceratur, postero die cæteris admiscetur: fiunt inde globuli fabæ magnitudine. Dantur a tribus usque ad septem.

Anguinei Cucumeris denarios VI. = dr. 6, gr. 15.
Semis ex aqua mulsa.

Veratri nigri Radicis *semissis,* = scr. 1, gr. 11.
Et ejus tertia portio pota ex vino passo.

Purgatio ventris quæ facit ad lumborum dolores, & ad omnium febrium molestias depellendas.

Scammoniæ * VIII. = oun. 1, gr. 19 ¾.
Veratri nigri, Anesi, Aphronitri, Nardi, Syriacæ, Cassiæ, Cinnamomi, singulorum, denarios binos = dr. 2, gr. 5.
Dantur hæc trita & mixta cum aquæ mulsæ hemina.

Purgatio ventris altera sic.
Scammoniæ * XII. = oun. 1, dr. 4, scr. 1, gr. 9.
Veratri nigri * XVI. = oun. 2, scr. 1, gr. 19.
Croci * V. = dr. 5, gr. 12 ½.
Myrrhæ * VII. = dr. 7, gr. 17 ½.

Cinnamomi

Cinnamomi * VII. = dr. 7, gr. 17, $\frac{1}{7}$.
Panacis * VIII. = oun. 1, gr. 19 $\frac{3}{5}$.
Piperis * V. = dr. 5, gr. 12 $\frac{1}{4}$.
Aphronitri * VI. = dr. 6, gr. 15.

Trita hæc & in pulverem redacta, melle consparguntur: datur ex his * I. S. *aquæ cyathis tribus.*

Aliud remedium ad ventris purgationem.

Uvæ passæ exemptis granis contusæ * IV. = dr. 4, gr. 10.
Anesi * VIII. = oun. 1, gr. 19 $\frac{3}{5}$.
Elaterii, *id est, Cucumeris in partes divisi, loti, & siccati,* * VII. dr. 7, gr. 17 .
Veratri nigri * XVI. = oun. 2, scr. 1, gr. 19.
Cunilæ seminis purgati interiora * XII = oun. 1, dr. 4, scr. 1, gr. 9.

Hæ in pulverem redacta colliguntur, & ex aqua dantur quantum fabæ trita grana sunt, superque acetum cum melle mixtum bibitur.

Alia ventris purgatio ejusdem effectus.

Scammoniæ * VIII.
Veratri nigræ * VIII.
Cucurbitæ sylvestris interiora * VIII.
Aphronitri * VIII.
Iridis * VIII.
} = oun. 1, gr. 19 $\frac{3}{5}$.

Nardi Syriacæ * V. S. & *victoriati partem tertiam* = dr. 5, scr. 1, gr. 3.
Myrrhæ idem pondus = dr. 5, scr. 1, gr. 3.

Ex his factus melle colligitur. Dantur ex medicamento hoc globuli quantum fabæ magnitudo est, ad denarios quatuor vel quinque, quibus devoratis acetum melle mixtum, superdandum est.

Ad

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Ad omnem febrium molestiam, &c.

Cucurbitæ sylvaticæ interiores partes aridas quæ quasi pluma sunt *VI. = dr. 6, gr. 15.

Croci ac Panacis denarios senos, = dr. 6, gr. 15.

Marrubii succi * VIII. = dr. 8, gr. 19 $\frac{3}{5}$.

Glycyrrhizæ * IV. = dr. 4, gr. 9 $\frac{4}{5}$.

Piperis albi * VI. = dr. 6, gr. 14 $\frac{7}{20}$.

Piperis longi * VI. = dr. 6, gr. 14 $\frac{7}{2}$.

Stœchados * *sex* = dr. 6, gr. 14 $\frac{7}{10}$.

Schœni floris * *quatuor* = dr. 4, gr. 9 $\frac{4}{5}$.

Malobathri * *tres* = dr. 3, gr. 7 $\frac{1}{3}$.

Passo colliquuntur trita hæc omnia, dantur ex his denarii singuli cum aquæ calidæ cyathis binis vel ternis.

Hiera ad resolutum stomachum & rejicientem quodcunque sumpserit.

Aloes nigræ * V. = dr. 5, gr. 12 $\frac{1}{4}$.

Mastiches * IV. = dr. 4, gr. 10.

Cinnami, Schœni floris, Malobathri, Nardi Syriacæ, Croci, Asari, Xylobalsami, singulorum denarios senos. = dr. 6, gr. 15.

Hæc trita vel contusa melle consparguntur, & ita reponuntur, & quum opus est, ad modum fabæ cum Oxymelle dantur.

Purgatio quâ Cosmus Medicus frequenter usus est.

Scammoniæ denarii victoriati ponderis partem unam = scr. 1, gr. 11.

Veratri nigri * I. = dr. 1, gr. 2 $\frac{1}{3}$.

Panacis * S. = scr. 1, gr. 11.

Ex melle consparguntur hæc trita, datur ex his quantum nux avellana est, ex aquæ mulsæ cyathis quatuor. Globuli quoque supradicta

magnitudine sicci, de hoc medicamento duo tresve dantur jejuno vel post cœnam vorandi.

Confectio Salis Cathartici.

Scammoniæ uncias tres
Zingiberis uncias tres } = oun. 2, dr. 5, scr. 2, gr. 11 ½.
Petroselini uncias tres
Salis Ammoniaci uncias quatuor = oun. 3, dr. 5, gr. 8 ½.
Mastiches uncias duas = oun. 1, dr. 6, gr. 14.
Piperis albi ⊢ I. = dr. 17, gr. 17.

Ita ut Scammoniam coquas, ut minus lædat. Coques enim sic: mittes in pastam, & deinde mittes in furnum, ut cum ea coquatur, & aliquantulum plus mittes, ut quum cocta fuerit, ad suprascriptum venias pondus, & quum refrixerit, tolles, & sic omnia teres, & miscebis, & ad quod volueris, manducandum in convivio pro quibuscunque salibus uteris.

Confectio Salis Cathartici, quam Marcellus ostendit sic.

Salis duri & assati P. I. ⊢ II. = oun. 1, dr. 7, scr. 1, gr. 17.
Salis Ammoniaci P. I. ⊢ IV. = oun. 3, dr. 6, gr. 11.
Piperis albi ⊢ III. = oun. 2, dr. 5, scr. 2, gr. 11 ½.
Zingiberis ⊢ IV. = oun. 3, dr. 5, gr. 8 ½.
Inulæ seminis ⊢ II. = oun. 1, dr. 6, scr. 1, gr. 14.
Ameos ⊢ III.
Hyssopi Cretici ⊢ III.
Laseris Radicis ⊢ III.
Thymi ⊢ III.
Folii ⊢ III. } = oun. 2, dr. 5, scr. 2, gr. 11 ½.
Apii seminis ⊢ III.
Anesi ⊢ III.
Petroselini Macedonici ⊢ III.

Origani

Origani ⊣ *quatuor* = oun. 3, dr. 5, gr. 8 ½.

Nasturtii seminis ⊣ *tres* = oun. 2, dr. 5, scr. 2, gr. 11 ½.

Hæc omnia tunsa, cribrata, atque in pulverem tenuissimum redacta, & in unum commixta repones in vase vitreo, & inde quotiens aliquid sumes seu bibes, quasi pro aliis salibus uteris.

A Specimen of an Emulsion in Ulcerations of the Bladder.

Alterci seminis, malvæ seminis, Cucumeris edulis seminis purgati, singulorum denarios senos = dr. 6, gr. 25.

Amygdalorum dulcium purgâtorum, nucleorum Pineorum purgatorum, singulorum * *ternos* = dr. 3, gr. 17 ½.

Opii * I. = dr. 1, gr. 2.

Croci * V. = dr. 5, gr. 12.

Passo contusa hæc omnia consparguntur, datur hoc medicamentum ad mensuram denarii unius = dr. 1, gr. 2.

Ex passi cyathis duobus, = four Spoonfuls.

Et aquæ tepidæ totidem.

Against Nephritick Pains.

Opii Drachmæ III. = dr. 3, gr. 7.

De nucleis Pineis excaldatis & purgatis Drach. III.

Croci Drach. III.

Amygdalæ dulcis excaldatæ & purgatæ Drach. III.

Avellanæ purgatæ & excaldatæ Drach. III.

Cucumeris seminis purgati Drach. XII. = oun. 1, dr. 4, scr. 1, gr. 9.

Hyoscyami albi seminis Cyathos III.
Apii seminis Cyathos III. } = oun. 2, dr. 5, gr. 13.
Fœniculi seminis Cyathos III.

Lapatii seminis Drach. I. = dr. 1, gr. 2.

Hæc

Hæc omnia primum separatim teres, & permiscebis cum passo Cretico. Tum ex eo facies Trochiscos habentes Drachmas singulos, & dabis bibendos singulos cum aquæ mulsæ calidæ Cyathis binis. = four Spoonfuls.

Against the Colick.

Panacis * IV. = dr. 4. gr. 9.
Piperis * IV. = dr. 4. gr. 9.
Dauci Cretici radicis vel seminis * VI. ---- dr. 6, gr. 13.
Sulphuris vivi * S. = scr. 1, gr. 11.
Opii duas tertiasve partes victoriati ponderis, = gr. 15 2 vel. 11.
Castorei * S. = scr. 1, gr. 11.
Myrrhæ * III. = dr. 3, gr. 7.

Hæc trita & cribrata vino consparguntur, & ex iis fiunt pastilli magnitudinis lupini. Dantur quum res postulat ex aceto & melle in unum mixto Cyathis tribus. = seven Spoonfuls.

The Simple Doses of purging Medicines according to Ruffus Ephesius.

	Ou.	Dr.	Scr.	Gr.
Filiculæ radicis ex mulso aut aqua ad Drachmas duas,	0	2	0	5
Ireos radicis in mulso aa Drachmas septem	0	7	0	17
Pulpæ Colocynthidos in mulso Drachma una	0	1	0	2½
Siquis tamen mitius purgare volet, semen ejiciendum est.				
Calcifraga in mulso ad Drachmas duas	0	2	0	5
Peplos & Peplis absque dosi				
Aloes in mulso Drachmas duas	0	2	0	5

	Ou.	Dr.	Scr.	Gr.
Hippophaes succi perse obolos tres	o	o	1	11
Hippophæstum minori copia				
Pycnocomum ejus radicem comedendam dato				
Vitis Drachmas duas	o	2	o	5
Epithymum tritum & cretum dandum est in vino	o	4	o	10
dulci semiuncia cum Siciliquo mensura	o	2	o	5
Thymi comæ Acetabuli mensura, a little above the eighth part of a Pint				
Amaraci sicci melle excepti, Drachmæ quatuor	o	4	o	10
Similiter & Origanum danda sunt sicca cum mulso Acetabuli mensura, the eighth part of a Pint.				
Papaveris utriusque seminis in mulso Acetabulum, the eighth of a Pint				
Cucumeris Radicis succus ad pondus trium obolorum	o	o	1	11
Heliotropii minoris manualis fasciculus in decocto.				
Sesamoidis seminis Acetabuli dimidium: the sixteenth part of a Pint.				
Tithymalli succi Drachma	o	1	o	2
Esali folia perarida mulso soluta mensura Acetabuli the eighth of a Pint				
Camelii folia nonnulli Absinthium admiscentes in Catapotia degerunt Pondus idoneum drachmæ duæ	o	2	o	5
Lathirius comesta Grana decem	o	10	1	4
Agaricum ex mulso aut posca ad siciliquum	o	2	o	5
Euphorphium, desunt cætera.				

The

The Doses of simple purging Medicines, according to Paulus Ægineta.

	Ou.	Dr.	Scr.	Gr.
Aloes Drachma una cum aqua mulsa	0	1	0	2
Drachma una Radicum [veratri nigri] in aqua mulsa	0	1	0	2
Scammoniæ ---- pondere Obolorum quatuor	0	0	2	2¼
Colocynthidis Medulla Drachmæ pondere	0	1	0	2½
Elaterium ---- trium Obolorum pondere cum lacte	0	0	1	11
Tithymalli guttæ quatuor aut quinque cum polenta				
Lathyrides ---- septem aut octo & ad quindecim, ita ut robusti & ampliori purgatione opus habentes, ipsas mandere jubeantur				
Peplii virgulta, octo obolorum pondere in aqua mulsa.	0	1	1	2½
Agaricum datur tritum duarum Drachmarum pondere cum aqua mulsa	0	1	0	2
Iris Illyrica octo Obolorum pondere in aqua mulsa	0	1	1	2¼
Centaurii sesquidrachma in aquæ hemina	0	1	1	13¼
Tragorigani flos cum semine duarum drachmarum pondere in aqua mulsa.	0	1	0	2
Chamelææ drachmæ quatuor in aqua mulsa	0	4	0	10
Aristolochiæ Clematidis seminis drachma una in aqua mulsa.	0	1	0	2
Polipodii Radix sicca trita aquæ mulsæ inspersa, (without the Dose.)				
Epithymi drachmæ quinque triti cum sero lactis	0	5	0	12
Pulegium Acetabuli mensura in aqua mulsa (the eighth of a Pint.)				
Tragorigani heracleotici eadem mensura.				

Alisphi

	Ou.	Dr.	Scr.	Gr.
Alispi seminis eadem mensura cum sale & aceto.				
Styrais albi drachma una cum Resina Terebinthina æqualis ponderis.	0	1	0	2
Oleæ radicis cortex drachmæ pondere cum vino aut aqua	0	1	0	2
Pyrethri oboli novem cum aqua	0	1	1	1 3½
Lychnidis seminis drachmæ duæ	0	2	0	4½
Cyclamini radicis Drachma una cum aqua mulsa.	0	1	0	2
Scordii drachmæ duæ cum melle	0	2	0	4½
Squamæ Cypriæ Drachma dimidia cum pari resina in Catapotiis.	0	0	1	11
Foliorum Lauri viridium sesquidrachma.	0	1	1	1 3½
Cucumeris sylvestris Radicis Corticis oboli duo	0	0	2	1½
Ricini Grana quadraginta, qui Crotones appellantur.	0	0	2	2½
Bdellii Drachmæ duæ cum aqua mulsa.				
Squamæ Cypriæ drachma una cum aqua mulsa.	0	1	0	2
Verum aceti parum insuper absorbere oportet ut ne remoratur Grani Cnidii, a Granis viginti ad quadraginta.	0	0	2	1½
	0	1	1	3
Euphorbii Drachma una cum melle cocto.	0	1	0	2
Lonchitidis seminis oboli octo cum aqua mulsa.	0	1	1	3
Cnici seminis Drachmæ quinque	0	5	0	12
Ammoniaci Thymiamatis Drachmæ duæ in aqua mulsa.	0	1	0	5

The Doses of compound purging Medicines, from Paulus Æginæta.

Catapotia ex Aloe; Colocynthidis medullæ partem unam, succi Absynthii partem unam, Aloes partem unam, Scammoniæ partes duas, cum aqua in Catapotia efformata Ciceris magnitudine: dantur ex his Grana undecem.

Purgatorium aquam ducens ex Caryophyllo.

	Ou.	Dr.	Scr.	Gr.
Aloes, Epithymi, Caryophylli, Grani Cnidii, Petroselini, Rhei Pontici, singulorum semiuncia,	0	3	2	3½
Euphorbii scrupulos quatuor,	0	1	1	3
Mellis quod satis est datur Cochlearii mensura.				

Purgatorium ex Malo Citrio, stomacho gratum.

Mali Citrii Corticis & Carnis libra una	10	7	1	6
In aquæ Sextario uno [one Pint] *semis ad tertias coquito. Et mellis sextario dimidio adjecto, ad mellis spissitudinem coquito,*				
Et piperis longi uncia / *Scammoniæ in fermento tostæ uncia. terito ac inspergito.*	0	7	0	17

Buccellatus purgatorius.

Scammoniæ tostæ uncia I.	0	7	0	17
Piperis & seminis Apii singulorum scrup. I.				
Fœniculi, Anisi, singulorum uncia I.	0	7	0	17
Mellis libra I.				
De moderato tostis dato unc. I. *in condito.*				

Vi-

Vinum purgatorium in Hydropicis.

Scyllæ quadrantem
Apii seminis sexuncem
Piperis Drachma I.
Capparis Radicis Drachmæ IV.
Grani Cnidii decorticati Drachma I.
Folii Malabathri globulos II.
Vini heminas XII.
Mellis Sextar. III.
Scyllam contusam in vino macerato, reliqua trita admisceto.

Purgatoria ex Hermodactylo Podagrica.

Hermodactyli quadrantem
Anisi, Cumini Æthiopici, Ameos, Thymi Corymborum, Piperis albi, Zingiberis, singulorum scrup. III.
Epithymi semunciam
Dosis scrup. IV. — *aliqui sex dant.*
Dantur mane cum condito, aut aqua mulsa, aut mero fervefacto.

Some Instances of the Practice of Aretæus.

AS to Blood-letting he was very judicious, both as to the cases and quantities.

[a] In Frenzies he was against letting much Blood at a time, because such Patients were apt to fall into a fainting Fit; unless it was the case of a young, strong, and replete Body: and even in such a case less was to be let, because they were frantick. But if the original of the Disease was in the Heart and not the Brain, then Blood was to be let the more liberally, and at one time. [b] In Apoplexies he lays great stress upon letting Blood, but owns that it is hard to proportion the due Quantity. [c] In the Cure of a *Tetanus* he is for letting Blood once, not quite to the fainting of the Patient. The vein in the Arm is that which he commonly opens, *in curvatura Cubiti*: and he gives a particular caution in this case to make a slack compression, for fear of exciting a Convulsion. [d] In a *Quinsy* he orders Blood-letting in some cases till the Patient faints, at least till he is very near it. [e] It appears that he thought copious Blood-letting was more necessary in a *Quinsy*, than in an Inflammation of the Lungs, for in that case he orders it not quite *ad animæ deliquium*. [f] In the Head-ach he orders the opening of the vein of the Forehead, and Blood to be let to the quantity of a *Hemina*, or a little more, that is somewhat more than

[a] Cap. 1. lib. 1. de Morbor. acutor. curatione. Venæ quoque incisor ne multum sanguinis detrahat, licet a principio secet. Phreniticis namque malum est in Syncopam facile mutabile. Sin autem ægrotus valde repletus sit, & juvenis plurimo cibo, & largissimo vini potu saginatus, hæ ad Phrenitidem rationes non pertinent: verum istis & citra delirium, multum sanguinis hauriendum est: longe autem minus auferendum si iidem Phrenitici sunt. ---- Quod si vires patiantur ut quantum sanguinis satis est evacuetur, semel auferendum est. [b] Ibid. cap. 4. Æquale sane adjutorium utpote magno affectui magnum remedium missio sanguinis est. [c] Ibid. cap. 6. Semel etiam cruor citra defectum animæ frigusque extremorum mediocriter effundatur. [d] Ibid. cap. 7. Haud ignobile quoque adjumentum præstat si ad animæ usque defectum ægrum perduxeris, usque eo tamen dum ne anima deficiat. [e] Lib. 2. cap. 1. [f] De Morb. diuturnor. curatione. Postea iterum vena frontis recta scindenda est, hæc enim est opportunissima sanguinis detractio, modus autem esto Hemina aut paulo plus.

than half a Pint; this is the first time that I have read of any Measure of the quantity of Blood. [g] His Purges are *Cnicus* and black *Hellebor*, and *Hiera* to the quantity of two *Drachms* to be given sometimes at Night. [h] *Elaterium*, mention'd only with this restriction, as much as is necessary to purge a man, and *Cneorum* or *Thymelæa* without mentioning any Dose. These last in a *Quinsy*, in which Disease he commends the *Elaterium* as most proper. He commends the *Radix Rhei* or *Rhubarb* as a better astringent than the juice of *Hypocistis* or *Accatia*, he orders it in the weight of three *Oboli*, or thirty one Grains. He commends *Hellebor* in Melancholy, and tells you that he will describe the several species of it, and manner of using of it, which is lost, with many other passages of his Works: you may see his commendation of white *Hellebor* in the quotation at the bottom of the page, which I think is very remarkable.

For Vomits he uses *Cardamomi pars, Æris combusti* ℈, *ex mulso in Epilepsics*, this he saith will either vomit or purge. Afterwards he adds these words, *verum potentiora etiam his medicamina ad vomitum deligenda sunt, ut Narcissi, Bulbi, Sinapis, & Hyssopi pares partes, Æris & Piperis dimidio minus quam priora, cum melle miscens exhibe.*

For *Clisters* he uses *Nitre, Euphorbium* the weight of three *Oboli* or thirty one Grains, the inward part of a sort of Gourd, of the decoction of *Centaury* in Oyl or Water, Honey with *Rue*, Turpentine and *Hyssop*; *Exempli gratia, Lotione per Clysterem usitata opus est:*

[g] De curat. acutor. morb. cap. 2. [h] Ibid. cap. 7. At si deglutiendi via expeditissima sit, Elaterium & cum mulsa & cum sero lactis, quantum ad purgandum hominem satis sit, præbeatur. Aliis enim purgatoriis Elaterium in his ægrotis præstantius est. Conferunt etiam Cneorum seu Thymelæ & Sinapi.——Quin & album Veratrum non vomitum tantum molitur, sed & etiam omnium simul purgantium medicamentorum efficacissimum est, non multitudine & varietate excrementorum: (id enim & affectus ille qui cholera dicitur, præstare solet) non distentionibus & violentia in vomendo (ad hoc enim & nausea & mare validiora sunt) sed potentia & qualitate non vitiosa; quippe quæ laborantibus sanitatem reddit per exiguam purgationem, & modicam intentionem. vetustorum præterea morborum omnium firmis Radicibus inhærentium, si cuncta alia medicamina viribus inferiora sint, id unicum remedium est; siquidem igni facultate persimile est album Veratrum: & quod ignis exurens facit, eo plus veratrum interius discurrens operatur: videlicet facilem spirationem ex difficili, ex pallido colore floridum, & ex macie corpulentiam.

eſt: in qua Nitri multum inſpergatur, aut Reſinæ a Terebintho arbore pondo Drachmæ duæ [dr. 2, gr. 5.] *eliquentur.*

He fomented the Head with Opiats to procure Sleep, particularly he commends the *Poppy* boil'd in Oyl and applied to the back part of the Head; and a Solution of *Opium* in Water to foment the Forehead. *Cap. 1. de morbis acutis. Magis autem ſoporiferum eſt Papaver in oleo elixum, capitis ſincipiti ſuperdatum,*—— *At ſi valentioribus auxiliis egebunt, ipſa etiam Papaveris lachryma ex aqua frons inungenda.* There are other mechanical helps he uſes to procure Sleep, in the ſame Chapter, not amiſs, particularly the ſcratching of the Temples and the Ears, for he ſaith even that mollifies the fury of wild Beaſts. Theſe Remedies are preſcribed in Madneſs.

For bliſtering, particularly in the falling Sickneſs, he uſes Frictions with *Cantharides*, but before orders Milk for fear they ſhould inflame the Bladder. *De curatione diuturnor. morb. cap. 4.*

For the ſame purpoſe he uſes *Lemneſtides* or *Adarce.*

Euphorbium cum unguine gleucino, and the ſtinging the Legs with Nettles, theſe in a Lethargy. *De Curat. morb. acut. cap. 2.*

He uſes Frictions with Squills for the ſame purpoſe.

He orders *Caſtor* in the Doſe of half a *Drachm*, and the ſame in *Cliſters, Caſtoreum dimidiæ Drachmæ pondere ex mulſæ Cyathis tribus ad plures dies bibendum eſt, ſi bibi vero non poſſit, ad demoliendam calamitatem, cum olei cyathis tribus, in quo ruta incocta ſit, duplum in imum inteſtinum infundatur, idque per plures dies faciendum.* He preſcribes it afterwards in the doſe of three *Oboli*, which is the ſame quantity; and yet he preſcribes *Aſſa fœtida* in the bigneſs of an *Ervum* or Vetch. *Quod ſi Cyreniaci Laſerpitii lachrymæ copia ibi fiat, hanc opus eſt melle cocto involutam ad Ervi magnitudinem devorandam dare.* By this paſſage it would ſeem that this Drug had not been ſo common. The *Ervum* I believe is a larger quantity than a Vetch, or even a common Pea.

He commends Milk as the Specifick in Conſumptions. (*De curatione morb. acutor. lib. 1.*) but he reckons Women's Milk new the beſt, and Goat's the worſt. *Morb. acut. lib. 2. cap. 6.*

He

He allows Patients that are ſubject to fainting not above half a Pint. *Ibid. cap.* 3.

Thus I have ſlightly touched this Subject ſo far as it falls in with my preſent Deſign, and I take the Liberty to recommend the further Proſecution of it to ſome Student of the Profeſſion, as a Work both uſeful to himſelf and the Publick.

It had been ſufficient in moſt Places of this ſhort Eſſay, to have ſet down the proportion of the Ingredients, noting only for once the ſmall difference of the *Denarius* and *Drachm*; but it having been done in the Manuſcript in every particular, I thought it was needleſs to expunge it.

F I N I S.

[illegible] PUBLIC LIBRARY

English measures of length

1

Inch	Palm	Span	Foot	Cubit	Yard	Pace	Faddom	Pole	Furlong	Mile
3	Palm									
9	3	Span								
12	4	$1\frac{1}{3}$	Foot							
18	6	2	$1\frac{1}{2}$	Cubit						
36	12	4	3	2	Yard					
60	20	$6\frac{2}{3}$	5	$3\frac{1}{3}$	$1\frac{2}{3}$	Pace				
72	24	8	6	4	2	$1\frac{1}{5}$	Faddom			
198	66	22	$16\frac{1}{2}$	11	$5\frac{1}{2}$	$3\frac{3}{10}$	$2\frac{3}{4}$	Pole		
7920	2640	880	660	440	220	132	110	40	Furlong	
63360	21120	7040	5280	3520	1760	1056	880	320	8	Mile

GRECIAN measures of length reduced to Engl.

2

											Name	Paces.	Feet.	Inch. Dec.
											δάκτυλος	0	0	$0,755\frac{5}{8}$
4											δῶρον δοχμή	0	0	$3,0218\frac{3}{4}$
10	$2\frac{1}{2}$										λιχάς	0	0	$7,5546\frac{7}{8}$
11	$2\frac{3}{4}$	$1\frac{1}{10}$									ὀρθόδωρον	0	0	$8,3101\frac{9}{16}$
12	3	$1\frac{1}{5}$	$1\frac{1}{11}$								σπιθαμή	0	0	$9,0656\frac{1}{4}$
16	4	$1\frac{6}{10}$	$1\frac{5}{11}$	$1\frac{1}{3}$							πούς	0	1	0,0875
18	$4\frac{1}{2}$	$1\frac{4}{5}$	$1\frac{7}{11}$	$1\frac{1}{2}$	$1\frac{1}{8}$						πυγμή	0	1	$1,5984\frac{3}{8}$
20	5	2	$1\frac{9}{11}$	$1\frac{2}{3}$	$1\frac{1}{4}$	$1\frac{1}{9}$					πυγών	0	1	$3,109\frac{3}{8}$
24	6	$2\frac{2}{5}$	$2\frac{2}{11}$	2	$1\frac{1}{2}$	$1\frac{1}{3}$	$1\frac{1}{5}$				πῆχυς	0	1	6,13125
96	24	$9\frac{3}{5}$	$8\frac{8}{11}$	8	6	$5\frac{1}{3}$	$4\frac{4}{5}$	4			ὀργυιά	0	6	0,525
9600	2400	960	$872\frac{8}{11}$	800	600	$533\frac{1}{3}$	480	400	100		στάδιον αὔλος	100	4	4,5
76800	19200	7680	$6981\frac{9}{11}$	6400	4800	$4266\frac{2}{3}$	3840	3200	800	8	μίλιον	805	5	0

1

ROMAN *measures of length.*

3.

Measure	Digitus	uncia	palmus minor	pes	palmipes	cubitus	gradus	passus	stadium	Engl. Paces.	Feet.	Inch. Dec.
Digitus transversus										0	0	0,725¼
uncia	1⅓									0	0	0,967
palmus minor	4	3								0	0	2,901
pes	16	12	4							0	0	11,604
palmipes	20	15	5	1¼						0	1	2,505
cubitus	24	18	6	1½	1⅕					0	1	5,406
gradus	40	30	10	2½	2	1⅔				0	2	5,01
passus	80	60	20	5	4	3⅓	2			0	4	10,02
stadium	10000	7500	2500	625	500	416⅔	250	125		120	4	4,5
milliare	80000	60000	20000	5000	4000	3333⅓	2000	1000	8	967	0	0

SCRIPTURE measures of length.

4

Measure	Digit	palm	span	cubit	fathom	Ezekiels Reed	Arabian pole	Engl. Feet.	Inch. Dec.
Digit								0	0,912
palm	4							0	3,648
span	12	3						0	10,944
cubit	24	6	2					1	9,888
fathom	96	24	8	4				7	3,552
Ezekiels Reed	144	36	12	6	1½			10	11,328
Arabian pole	192	48	16	8	2	1⅓		14	7,104
Schoenus measuring line	1920	480	160	80	20	13⅓	10	145	11,04

The longer SCRIPTURE measures.

Note the East us'd another Span equal to ⅓ of a Cubit.

5

Measure	Cubit	stadium	Sab days journey	Eastern mile	parasang	Engl. Miles.	Paces.	Feet. Dec.
Cubit						0	0	1,824
stadium	400					0	145	4,6
Sab days journey	2000	5				0	729	3,0
Eastern mile	4000	10	2			1	403	1,0
parasang	12000	30	6	3		4	153	3,0
a days journey	96000	240	48	24	8	33	172	4,0

2

English square measures.

6

Inches						
144	Feet					
1296	9	Yards				
3600	25	2 7/9	Paces			
39204	272 1/4	30 1/4	10,89	Poles		
1568160	10890	1210	435,6	40	Rood	
6272640	43560	4840	1743,6	160	4	Acre

English measures of capacity, Wine measure

7

Solid Inches									
28 7/8	Pint								
231	8	Gallon							
4158	144	18	Rundlet						
7276 1/2	252	31 1/2	1 3/4	Barrel					
9702	336	42	2 1/3	1 1/3	Tierce				
14553	504	63	3 1/2	2	1 1/2	Hogshead			
19279	672	84	4 2/3	2 2/3	2	1 1/3	Punchion		
29106	1008	126	7	4	3	2	1 1/2	Butt	
58212	2016	252	14	8	6	4	3	2	Tun

English Corn measures.

are rais'd from a Winchester Gallon, *which contains* 272 1/4 *solid Inches &c as farr as serves our purpose are*

8

Solid Inches					
34 1/32	Pints				
272 1/4	8	Gallon			
544 1/2	16	2	Peck		
2178	64	8	4	Bushel	
17424	512	64	32	8	Quarter

GRECIAN SQUARE MEASURE:

Πλέθρον *by some said to contain* 1444. *others* 10000. sq. Feet.

Ἄρουρα *the half of the* Πλέθρον.

The Ægyptian Ἄρουρα was y^e square of 100 Cub^ts

ROMAN SQUARE MEASURE.

The ***ROMANS*** *divided their* As, Libra *or any* Integer *after the following manner, so the* Jugerum *was reckon'd y^e* Integer.

		Unciæ.	*JUGERUM contain'd*	Square Feet.	Scruples.	Engl. Roods.	Sq. Poles.	Sq. Feet.
1	As	12	As	28800	288	2	18	250,05
11/12	Deunx	11	Deunx	26400	264	2	10	183,85
5/6	Dextans	10	Dextans	24000	240	2	2	117,64
3/4	Dodrans	9	Dodrans	21600	216	1	34	51,42
2/3	Bes	8	Bes	19200	192	1	25	257,46
7/12	Septunx	7	Septunx	16800	168	1	17	191,25
1/2	Semis	6	Semis	14400	144	1	09	125,03
5/12	Quincunx	5	Quincunx	12000	120	1	01	58,82
1/3	Triens	4	Triens	9600	96	0	32	264,85
1/4	Quadrans	3	Quadrans	7200	72	0	24	198,64
1/6	Sextans	2	Sextans	4800	48	0	16	132,43
1/12	Uncia	1	Uncia	2400	24	0	08	66,21

NOTE. Actus Major *was* 14400 *Square feet equal to a* Semis-

Clima 3600 *Square feet equal to a* Sescuncia.

Actus minimus *equal to a* Sextans.

ATTICK *measures of capacity for things Liquid.*

ENGLISH WINE MEASURE.

10

										Gall.	Pints.	Sol. Inch. Dec.
κοχλιάριον										0	$\frac{1}{120}$	0,0356 $\frac{1}{12}$
2	χήμη									0	$\frac{1}{60}$	0,0712 $\frac{2}{6}$
$2\frac{1}{2}$	$1\frac{1}{4}$	μύστρον								0	$\frac{1}{48}$	0,089 $\frac{11}{48}$
5	$2\frac{1}{2}$	2	κόγχη							0	$\frac{1}{24}$	0,178 $\frac{11}{24}$
10	5	4	2	κύαθος						0	$\frac{1}{12}$	0,356 $\frac{11}{12}$
15	$7\frac{1}{2}$	6	3	$1\frac{1}{2}$	ὀξύβαφον					0	$\frac{1}{8}$	0,535 $\frac{3}{8}$
60	30	24	12	6	4	κοτύλη				0	$\frac{1}{2}$	2,141 $\frac{1}{2}$
120	60	48	24	12	8	2	ξέστης			0	1	4,283
720	360	288	144	72	48	12	6	χοῦς		0	6	25,698
8640	4320	3456	1728	864	576	144	72	12	μετρητής	10	2	19,626

ATTICK *measures of capacity for things Dry.*

ENGLISH CORN MEASURE.

11

							Pecks.	Gall.	Pints.	Sol. Inch.
κοχλιάριον							0	0	0	0,276 $\frac{5}{6}$
10	κύαθος						0	0	0	2,763 $\frac{1}{2}$
15	$1\frac{1}{2}$	ὀξύβαφον					0	0	0	4,144 $\frac{3}{4}$
60	6	4	κοτύλη				0	0	0	16,579
120	12	8	2	ξέστης			0	0	0	33,158
180	18	12	3	$1\frac{1}{2}$	χοῖνιξ		0	0	1	15,705 $\frac{1}{2}$
8640	864	576	144	72	48	μέδιμνος	4	0	6	[illegible]

N.B. *Besides this* Medimnus *which is the* Medicus, *there was a* Medimnus Georgicus *equal to* [illegible] Roman Modij *& there are some other Measures (mentioned) in Authors,* [illegible] *not reducible to any of the Tables.*

ROMAN measures *of capacity for things* liquid

										English Wine Measure Gall.	Pints.	Sol.Inc.Dec.
Ligula										0	0 $\frac{1}{48}$	0.117 $\frac{1}{2}$
4	Cyathus									0	0 $\frac{1}{12}$	0.469 $\frac{2}{3}$
6	1 $\frac{1}{2}$	Acetabulum								0	0 $\frac{1}{8}$	0.704 $\frac{1}{2}$
12	3	2	Quartarus							0	0 $\frac{1}{4}$	1.409
24	6	4	2	Hemina						0	0 $\frac{1}{2}$	2.818
48	12	8	4	2	Sextarius					0	1	5.636
288	72	48	24	12	6	Congius				0	7	4.942
1152	288	192	96	48	24	4	Urna			3	4 $\frac{1}{2}$	5.33
2304	576	384	192	96	48	8	2	Amphora		7	1	10.66
46080	11520	7680	3840	1920	960	160	40	20	Culeus	143	3	11.095

12

Note 1. Quadrantal is ye same wth ye Amphora, Cadus, Congiarius & Dolium denote no certain measure.
Note 2. The Romans divided the Sextarius as the Libra into 12 equal parts called Cyathi and from these they denominated their Calices, Sextantes, Quadrantes, Trientes, according to the number of Cyathi which they contain'd.

ROMAN measures *of capacity for things* dry

						English Corn Measure Pecks.	Gall.	Pints.	Sol.Inc.Dec.
Ligula						0	0	0 $\frac{1}{48}$	0.01
4	Cyathus					0	0	0 $\frac{1}{12}$	0.04
6	1 $\frac{1}{2}$	Acetabulum				0	0	0 $\frac{1}{8}$	0.06
24	6	4	Hemina			0	0	0 $\frac{1}{2}$	0.24
48	12	8	2	Sextarius		0	0	1	0.48
384	96	64	16	8	Semimod	0	1	0	3.84
768	192	128	32	16	2 Modius	1	0	0	7.68

13

JEWISH measures *of capacity for things* liquid

						Gall.	Pints.	Sol.Inc.
Caph						0	0 [illegible]	0.177
1 $\frac{1}{3}$	Log					0	0 $\frac{5}{6}$	0.211
5 $\frac{1}{3}$	4	Cab				0	3 $\frac{1}{3}$	0.844
16	12	3	Hin			1	2	2.533
32	24	6	2	Seah		2	4	5.067
96	72	18	6	3	Bath Epha	7	4	15.2
960	720	180	60	[illegible]	[illegible]	75	5	7.625

14

JEWISH measures of Capacity for things dry. English Corn Measure.

15

							Pecks.	Gall.	Pints.	Sol.Inc.Dec
Gachal							0	0	0 $\frac{17}{20}$	0 ,031
20	Cab						0	0	2 $\frac{5}{6}$	0 ,073
36	$1\frac{4}{5}$	Gomor					0	0	5 $\frac{1}{10}$	1 ,211
120	6	$3\frac{1}{3}$	Seah				1	0	1	4 ,036
360	18	10	3	Epha			3	0	3	12,107
1800	90	50	15	5	Letech		16	0	0	26,500
3600	180	100	30	10	2	Chomer Coron	32	0	1	18,969

ENGLISH *Troy weight.*

16

Grains.			
24	Penny-weight.		
480	20	Ounce.	
5760	240	12	Pound.

The most Antient GRECIAN Weights reduc'd to Troy weight.

			lb	Ounces.	Pen.W.t	Grains
Δραχμη			00	00	06	2 $\frac{22}{49}$
100	Μνα		01	01	00	4 $\frac{44}{49}$
6000	60	Ταλαντον	65	00	12	5 $\frac{45}{49}$

ncient GRECIAN and ROMAN weights reduc'd to English Troy weight.

17

										lb	Ounces.	Pen.w.t	Grains.
Lentes										0	0	00	0 $\frac{85}{112}$
4	Siliquæ									0	0	00	3 $\frac{1}{28}$
12	3	Obolus								0	0	00	9 $\frac{3}{28}$
24	6	2	Scriptulum							0	0	00	18 $\frac{3}{14}$
72	18	6	3	Drachma						0	0	02	6 $\frac{9}{14}$
96	24	8	4	$1\frac{1}{3}$	Sextula					0	0	03	0 $\frac{6}{7}$
144	36	12	6	2	$1\frac{1}{2}$	Sicilicus				0	0	04	13 $\frac{2}{7}$
192	48	16	8	$2\frac{2}{3}$	2	$1\frac{1}{3}$	Duella			0	0	06	1 $\frac{5}{7}$
576	144	48	24	8	6	4	3	Uncia		0	0	18	5 $\frac{1}{7}$
6912	1728	576	288	96	72	48	36	12	Libra	0	10	18	13 $\frac{5}{7}$

The Roman Ounce *is the English* Avoirdupois Ounce *which they divided into* 7 Denarij, *as well as* 8 Drachms, *and since they reckon'd their* Denarius *equal to the* Attick Drachm *this will make the* Attick *weights* $\frac{1}{8}$ *heavier than the correspondent* Roman weights.

Note *The Grecians divided their* Obolus *into* Chalci *and* λεπτα *some as* Diodorus *and* Suidas *divided the* Obolus *into* 6 Chalci *and every* Chalcus *into* 7 λεπτα *others divided the* Obolus *into* 8 Chalci *and every* Chalcus *into* 8 λεπτα *or minuta.*

The greater weights reduc'd to Engl. Troy weig.t

				lb.	Ounces	Penw.t	Grains
			Libra				
18	$1\frac{3}{24}$		Mina Attica communis	0	10	18	13 [illegible]
	$1\frac{1}{3}$	$1\frac{7}{23}$	Mina Attica Medica	0	11	07	16 [illegible]
	$62\frac{1}{2}$	60	$46\frac{7}{8}$ Talentum Atticum commune	1	02	11	10 [illegible]
				56	11	00	17 [illegible]

Note *There was another* Attick Talent *by some said to consist of* 80 *by others a* 100 Minæ.
Note *every* Mina *contains a* 100 Drachmæ *and every* Talent 60 Minæ, *but the* Talents *differ in weight according to the different* Standard *of the* Drachmæ *and* Minæ *of which they are compos'd*. The *value of some different* Minæ *and* Talents *in* Attick Drachmæ, Minæ *and* English Troy weight, *is exhibited in the following* Table.

MINA.

			lb.	Ounc.	Pen.wt	Gra.
Ægyptiaca	est Drachm. Atticar.					
Antiochica		$133\frac{1}{3}$	1	03	06	22 [illegible]
Cleopatræ Ptolemaica		$133\frac{1}{3}$	1	03	06	22 [illegible]
Alexandrina Dioscoridis		144	1	06	14	16 [illegible]
		160	1	08	16	07 [illegible]

19 ## TALENTUM.

			lb.	Ounc.	Pen.wt	Gra.
Ægyptiacum	est Minarum Atticar.					
Antiochicum		80	86	08	16	08
Ptolemaicum Cleop.		80	86	08	16	08
Alexandriæ		$86\frac{2}{3}$	93	11	11	00
Insulanum		96	104	00	19	14
Antiochiæ		120	130	01	04	12
		360	390	03	13	11

JEWISH WEIGHTS *reduc'd to English Troy Weights.*

				lb	Ounc	Pwt	Gr.
	Shekel			00	00	09	02 $\frac{4}{7}$
20	60	Maneh		02	03	06	10 $\frac{2}{7}$
	3000	50	Talent	113	10	01	10 $\frac{2}{7}$

Note *in reckoning* money 50 Shekels *made a* Maneh, *but in weight* 60 Shekels.

The value and proportion of the Grecian Coins

												l	sh	d	q
	λεπτὸν											00	00	00	0 $\frac{31}{336}$
	7	χαλκοῦς										00	00	00	0 $\frac{31}{48}$
	14	2	δίχαλκος									00	00	00	1 $\frac{7}{24}$
	28	4	2	ἡμιωβόλιον								00	00	00	2 $\frac{7}{12}$
	56	8	4	2	ὀβολὸς							00	00	01	1 $\frac{1}{6}$
21	112	16	8	4	2	διώβολον						00	00	02	2 $\frac{1}{3}$
	224	32	16	8	4	2	τετρώβολον					00	00	05	0 $\frac{2}{3}$
	336	48	24	12	6	3	1½	δραχμή				00	00	07	3
	662	96	48	24	12	6	3	2	δίδραχμον			00	01	03	2
	1324	112	96	48	24	12	6	4	2	τετράδραχμον στατὴρ		00	02	07	0
	1660	384	120	60	30	15	7½	5	2½	1¼	πεντάδραχμον	00	03	02	3

Note *of these the* Drachma, Didrachm &c. *were of* Silver, *the rest for the most part of* Brass; *the other parts as* Tridrachm, Triobolus &c *were sometime* Coin'd

N 2 *I have suppos'd with the generality of Authors that the* Drachma *and* Denarius *were equal, tho' there's reason to believe the* Drachma *was somewhat the weightier.*

THE GRECIAN GOLD COIN *was y^e* Stater Aureus *weighing* 2. *Attick Drachms or half of y^e* Stater Argenteus *&exchanging usually for* 25 Attick Drachms *of* Silver *in our money* .... 00 – 16 – 1 $\frac{d}{2}$

According to our proportion of Gold *to* Silver .... 01 – 00 – 0

There were likewise y^e Stater Cyzicenus *exchanging for* 28 Attick Drachms *or* .... 00 – 18 – 1

22 Stater Phillippicus & Stater Alexandrinus *of the same value*

Stater Daricus *according to* Josephus *worth* 50 Attick Drachms *or* .... 01 – 12 – 3½

Stater Crœsius *of the same value.*

The GRECIAN manner of reckoning sums of money, was by DRACHMÆ

	l	ſh	d
1	0	00	$07\frac{3}{4}$
10	0	06	$05\frac{1}{2}$
100 equal to a Mina	3	04	07

MINÆ

	l	ſh	d
1	3	04	07
10	32	05	10
60 equal to a Talentum	193	15	00

TALENTA

	l	ſh	d
1	193	15	00
10	1937	10	00
100	19375	00	00

I have given the value of y^e different Talents and Minæ, consider'd as Weights: but when they denote Sums of money, they vary after the following manner.

MINA		
Syra		25
Ptolemaica		$33\frac{1}{3}$
Antiochica		100
Eubœa		100
Babylonica		116
Attica major	cll Drachm. Atticæ.	$133\frac{1}{3}$
Tyria		$133\frac{1}{3}$
Æginæa		$166\frac{2}{3}$
Rhodia		$166\frac{2}{3}$

TALENTUM		
Syrum		15
Ptolemaicum		20
Antiochicum		60
Eubœum		60
Babylonicum	Minarum	70
Atticum majus	Atticarum.	80
Tyrium		80
Æginæum		100
Rhodium		100
Egyptium		80

The value and proportion of the Roman Coins.

						l	ſh	d	q
Teruncius						00	00	00	0 [illegible]
2	Sembella					00	00	00	$1\frac{55}{100}$
4	2	Libella. As				00	00	00	$3\frac{1}{10}$
10	5	$2\frac{1}{2}$	Seſtertius			00	00	01	$3\frac{3}{4}$
20	10	5	2	Quinarius Victoriatus		00	00	03	$3\frac{1}{2}$
40	20	10	4	2	Denarius	00	00	07	3

Note of these the Denarius, Victoriatus, Seſtertius and some times the As were of Silver, the rest of Braſs.

There were ſometimes also Coins of Braſs the Triens, Sextans, Uncia, Sextula and Dupondius.

The ROMAN GOLD COIN was the *AUREUS, which weigh'd Generally double the* Denarius; *the value of which according to the first proportion of* Coinage *mention'd by* Pliny Lib. XXXIII. Cap. III.

	l - ſ - d
was worth	1 - 04 - 3¾
According to the proportion that obtains now amongst us, worth.	1 - 00 - 9
According to the Decuple proportion mention'd by LIVY and JULIUS POLLUX worth.	0 - 12 - 11
According to the proportion mention'd by TACITUS, and which afterwards obtain'd whereby the AUREUS exchang'd for 25. Denarij, *its value*	0 - 16 - 1¾

Some Alterations *of the Value of the* ROMAN COIN *mention'd by* Pliny.

In the Reign of Servius	....	The AS *weigh'd* of Brass	1 Pound.
A. Urb. 490	....		2 Ounces.
A. Urb. 537	....		1 Ounce.
A. Urb. 586	....		½ Ounce.
A. Urb. 485	....	DENARIUS exchang'd for	10 Asses.
A. Urb. 537	....		16 Asses.
A. Urb. 547	Scruple *of* GOLD *worth*		20 Sestertij.
Coin'd *afterwards of the* Pound *of* Gold			20 Denarij. } Aurei.
In NERO'S Time *of the* Pound *of* Gold			45 Denarij. } Aurei.

The ROMAN manner of reckoning Sums of money reduc'd to the ENGLISH STANDARD.

Sestertij nummi.

	l - ſh - d - q
Sestertius	0-00-01-3½
Decem	0-01-07-1½
Centum	0-16-01-3
Mille *æqual to a* Sestertium	8-01-05-2

Sestertia.

Sestertium	8-01-05½
Decem	80-14-07
Centum, *this Sum the Romans exprest thus:* debet mihi centum, debet mihi centum Sestertia, *vel* debet centum millia Sestertium.	807-05-10
Mille	8072-18-04

Decies Sestertium &c.

The direct Centies *being understood.*

Decies Sestertium *vel* Decies centena millia nummum.	8072-18-04
Centies *vel* Centies H.S.	80729-03-04
Millies H S	807201-13-04
Millies Centies H S ...	888020-16-08

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The ROMAN manner of reckoning INTEREST OF MONEY.

Asses usuræ *vel* Centesimæ usuræ	1	12	
Semisses usuræ	$\frac{1}{2}$	6	
Trientes usuræ	$\frac{1}{3}$	4	
Quadrantes usuræ	$\frac{1}{4}$	3	
Sextantes usuræ	$\frac{1}{6}$	2	
27 Unciæ usuræ	$\frac{1}{12}$ per Cent a Month	1	per Cent a Year.
Quincunces usuræ	$\frac{5}{12}$	5	
Septunces usuræ	$\frac{7}{12}$	7	
Besses usuræ	$\frac{2}{3}$	8	
Dodrantes usuræ	$\frac{3}{4}$	9	
Dextantes usuræ	$\frac{5}{6}$	10	
Deunces usuræ	$\frac{11}{12}$	11	

JEWISH money reduced to the English Standard.

					l.	sh.	d.
Gerah					00	00	1 $\frac{52}{100}$
10	Bekah				00	01	1 $\frac{11}{16}$
20	2	Shekel			00	02	3 $\frac{3}{8}$
28 1200	120	50	Maneh Mina Hæbraica		05	14	00 $\frac{3}{4}$
60000	6000	3000	60	Talent	342	03	09
Solidus Aureus *or* Sextula *worth*					00	12	0 $\frac{1}{2}$
Siclus Aureus *worth*					1	16	6
A Talent *of* Gold *worth*					5475	00	0

Note in all the Tables of money I reckon Silver at 5 Shillings and Gold 4 Pound the Ounce.

The EXPLANATION *of ſome of ye more uſual* Characters *of* Weights *and* Meaſures *found in* Greek & Roman Authors.

ꝗ...Amphora.	Κερ μ...μετρήτης	p, ₶ Libra.	=...Sextans.	μν̃...μνᾶ
ꝗ S. Urna.	χο...χοῦς	pp. Dupondium.	∓. Quadrans.	Λ λ λίτρα
Ɛ...Congius.	ξε...ξέστης	∸...Uncia.	==. Triens.	ου...οὐγγία
Ͻ...Sextarius.	κο...κοτύλη	ƐS...Semiuncia.	∓=. Quincunx.	δρ...δραχμή
Ͻ S. Hemina.	ὀξ...ὀξύβαφον	) 9...Sicilicus.	S. S''. Semilibra.	γρ...γράμμα
Q. Quartarius.	κυ...κύαθος	Ʊ...Sextula.	V...Septunx.	ὀβ...ὀβολός
Κυ cυ. Cyathus.	μυ...μύστρον	∠...Drachma.	_S_ Bes.	κερ...κεράτιον
M. Modius.	χη...χήμη	Ⅎ, SS. Scriptulus.	S∓. Dodrans.	χαλ...χαλκοῦς
M S. Semimodius.	μεδ...μέδιμνος	∸...Obolus.	S==Dextans.	
	χοι...χοῖνιξ	N...Siliqua.	S≡Deunx.	
		Quυ Chalcus.	Ɏ...Semiſextula.	
		O...Granum.	IϽ...Binæ Sextulæ.	
		X ✳ Denarius.	∸...Drachmæ ſex.	

Thoſe *who do not underſtand* Decimal Fractions *may obſerve that the* Denominator *of every ſuch* Decimal, *is an Unite with as many* Cyphers *as there are places of numbers in the fraction: thus in the ſecond Table under* Inch. dec. 3.0218 *ſignifies* 3 Inches *and* $\frac{0218}{10000}$ *of an* Inch: 3.12 *ſignifies* 3 Inches *and* $\frac{12}{100}$ *of an* Inch: 10.4 *is* 10 Inches *and* $\frac{4}{10}$ &c. All *other things in the* Tables *with their ſeverall uſes are plain.*

Decimal Tables

Roman Measures of Length

	Inches
Digitus Transversus	0,72525
Uncia	0,967
Palmus minor	2,901
Pes	11,604
	Feet
Palmipes	1,2087.5
Cubitus	1,4505
Gradus	2,4175
	Paces
Passus	0,967
Stadium	120,875
Milliare	967,0

Scripture Measures of Length

	Inches
Digit	0,7425
Palm	2,97
Span	8,91
	Feet
Lesser Cubit	1,485
Greater Cubit	1,7825
	Yards
Fathom	2,31
Ezekiels Reed	3,465
Arabian Pole	4,62
Schoenus	46,2
Stadium	231,0
Sabbath days Journey	1155,0
	Miles
Eastern Mile	1,386
Parasang	4,158
Days Journey	33,264

Grecian Measures of Length

	Inches
Δάκτυλος	0,7554687,5
Δῶρον / Δοχμή	3,021875
Λιχάς	7,5546875
Ὀρθόδωρον	8,3101562,5
Σπιθαμή	9,0656,25
Πους	12,0875
	Feet
Πους	1,00729 $\frac{1}{6}$
Πυγμή	1,1332031,25
Πυγών	1,2591145 8 $\frac{1}{3}$
Πῆχυς	1,5109375
	Paces
Ὀργυιά	1,00729 $\frac{1}{6}$
Στάδιος / Αὔλος	100,729 $\frac{1}{6}$
Μίλιον	805,8 $\frac{1}{3}$

Roman Measures for Things Dry

Hemina	0,5074 Pints
Sextarius	1,0148 Pints
Medius	1,0141 Pecks

Attick Measur for Things Dry

Ξέστης	0,9903 Pints
Χοῖνιξ	1,486 Pints
Μέδιμνος	1,0906 Bushels

Jewish Measures for Things Dry According to Josephus

Gachal	0,1949 Pints
Cab	3,874 Pints
Gomer	7,0152 Pints
Seah	1,4615 Pecks
Ephah	1,0961 Bushels
Letech	5,4807 Bushels
Coron / *Chomer*	1,3702 Quarters

Roman Measures for Things Liquid

Hemina	0,59759 Pints
Sextarius	1,19518 Pints
Congius	7,1712 Pints
Urna	3,5857 Gallons
Amphora	7,1712 Gallons
Culeus	2,27 $\frac{2}{3}$ Hogsheads

Drachma or Denarius in Fractions of a lib Sterling

1	,0322916667
2	,0645833333
3	,0968750000
4	,1291666667
5	,1614583333
6	,1937500000
7	,2260416667
8	,2583333333
9	,2906250000

Sestertius in Fraction of a Lib Sterling

1	,0080729166 7
2	,0161458333 3
3	,0242187500 0
4	,0322916666 7
5	,0403645833 3
6	,0484375000 0
7	,0565104166 7
8	,0645833333 3
9	,0726562500 0

Attick Measures for Things Liquid

Κοτύλη	0,5742 Pints
Ξέστης	1,1483
Χοῦς	6,8900
Μετρητής	10,3350 Gallons

Iewish Measures for Things Liquid According to Iosephus

Caph	0,8612 Pints
Log	1,1483
Cab	4,5933
Hin	1,7225 Gallons
Seah	3,4450
Bath	10,3350
Corun	1,6400 Hogshead

The Ancient Arabian Weights Reducd To Troy Weights

										Name	Lib	Ounc.	Pen.wt	Grain
										kestuf	00	00	00	01 [illegible]
2										kirat	00	00	00	03 1/[illegible]
4	2									Danich	00	00	00	06 1/4
6	3	1 1/2								Onolofsat	00	00	00	09 [illegible]
12	6	3	2							Garme	00	00	00	18 [illegible]
36	18	9	6	3						Darchimi	00	00	02	06 [illegible]
41 1/7	20 4/7	10 2/7	6 6/7	3 3/7	1 1/7					Denarius	00	00	02	14 [illegible]
144	72	36	24	12	4	3 1/2				Sextarium	00	00	09	02 [illegible]
288	144	72	48	24	8	7	2			Sacros	00	00	18	05 1/[illegible]
3456	1728	864	576	288	96	84	24	12		Ratel	00	10	18	10 [illegible]
4608	2304	1152	768	384	128	112	32	16	1 1/3	Mitcalien	01	02	11	10 [illegible]

MODERN MEASURES &

Measures of Length of Several Countrys taken from Greaves, Auzout, Picard, and Elsenschmid, Reduc'd to English Feet & Inches.

		Inches
English foot	1000	12.
Paris foot	1068	12,816
Venetian foot	1162	13,944
Rhinland foot	1033	12,396
Strasburgh foot	952	11,424
Noremberg foot	1000	12.
Dantzick foot	944	11,328
Danish foot	1042	12,504
Swedish foot	977¾	11,733
Derahor Cubit of Cairo	1824	21,888
Persian Arish	3197	38,364
Greater Turkish Pike	2200	26,4.
Lesser Turkish Pike	2131	25,572
Braccio at Florence	1913	22,956
Braccio for Woolen at Siena	1242	14,904
Braccio for Linen at Siena	1974	23,688
Canna at Naples	6880	82,56
Vara at Almaria & Gibraltar	2760	33,12
Palmo di Architetti at Rome	732	8,784
Canna di Architetti	7320	87,84
Palmo di Braccio di Mercantia	695½	8,346
Genoa Palm	815	9,78
Bolognian foot	1250	15.
Antwerp Ell	2283	27,396
Amsterdam Ell	2268	27,216
Leyden Ell	2260	27,12
Paris Drapers Ell	3929	47,148
Paris Mercers Ell	3937	47,244

The Following Weights are From Esenschmid Given in Troy Grains.

	Grains
Strasburgh Ounce	454¾
Strasburgh pound of 16 Ounces	7276
Noremberg Ounce	491⅞
Noremberg pound of 16 Ounces	7870
Paris Medicinal pound of 12 Ounces	5670
the Medicinal Ounce in Germany	460⅔
The Carat for weighing Diamonds	[illegible]

A Table of the Gold & Silver Weights of Several Countrys from Greaves given in Troy Grains English.

	Grains
Roman Ounce	438
Roman pound of 12 Ounces	5256
Spanish Ounce	443½
Spanish pounds of 16 Ounces	7090
Venetian Ounce	460⅔
Venetian pounds of 12 Ounces	5528
Neapolitan Ounce	412½
Neapolitan pound of 12 Ounces	4950
Ounce at Florence, Pisa & Leghorn	440½
Their pound of 12 Ounces	5286
Ounce at Siena	431½
Siena pound of 12 Ounces	5178
The Ounce at Genoa	405½
The Dutch Ounce	570
The Turkish Okey of 400 Silver Drachms	19128
The Silver Drachm in Turkey, Persia and the Moguls Country	47 41/50
The Turkish Sultani, or Egyptian Sherif being a Gold Coin of the same weight with ye Venetian and Barbary Chequeen & Hungarian Ducat	53½
The Cairo Rotl of 144 Drachms	6886 [illegible]
The Damascus Rotl of 720 Drachms with which its suppos'd they formerly weigh'd their Gold & Silver	34430 [illegible]

The French Weighs Reduc'd to Troy Weights

									lb Oz Pw Gr
Grain									0–0–00–00 [illegible]
7⅕	Felin								0–0–00–07 [illegible]
14⅖	2	Maille							0–0–00–11 [illegible]
24	3⅓	1⅔	Denier						0–0–00–19 [illegible]
28⅘	4	2	1⅕	Esterlin					0–0–00–23 [illegible]
72	10	5	3	2½	Grosse				0–0–02–11 [illegible]
576	80	40	24	20	8	Ounce			0–0–10–16 [illegible]
4608	640	320	192	160	64	8	Marc		0–7–17–12
9216	1280	640	384	320	128	16	2	Pound	1–3–15–00

[illegible] PUBLIC LIBRARY

N. B. The Cologn Weights are us'd through all Germany in weighing Gold & Silver —

The Cologn Weights Reduc'd to Troy Weights.

						Oz.	Penw.t	Gra.
Es						00	00	00 $\frac{3}{4}$
32	Englisch					00	00	23 $\frac{3}{4}$
76	2 $\frac{3}{8}$	Drachm				00	02	08 $\frac{13}{32}$
304	9 $\frac{1}{2}$	4	Lothig			00	09	09 $\frac{11}{16}$
608	19	8	2	Ounce		00	18	19 $\frac{3}{8}$
4864	152	64	16	8	Marc	07	10	11

Paris Measures — Eng. Wine Measure

Paris Measures	Eng. Wine Measure
Chopine	1 Pint
Pint	2 Pints
Sextier	2 Gallons
Muid	1 $\frac{1}{7}$ Hogshead

Strasburgh Measures

	Pints
Schoppen	0,8171
Pint	1,6342
Massen	3,2684
Ohman	98,0520
Fuder	2353,2500

OTHER MEASURES.

Paris Boisseau = 78534 solid Inches = 1 $\frac{4}{5}$ Peck nearly.
Strasburgh Statt Sester = 1125,434 Solid Inches = 2 $\frac{1}{15}$ Pecks.
Strasburgh Land Sester = 1160,604 Solid Inches = 2 $\frac{5}{38}$ Pecks.
The Arpenne or French Acre = 55206 Square English Feet = 1 $\frac{1}{4}$ English Acre.
The Strasburgh Acre = 21751 Square English feet about half an Eng. Acre.

The Vessel in Germany called Weeder made use of for keeping the Renish and Mosel Wines doth Ordinarily contain 14 Aumes of Amsterdam, or 2 English Tuns

The Aume of Amsterdam contains 8 Steckans or 20 Verges or Vertels being what in England is called a Tierce or $\frac{1}{6}$ of a Tun of France or $\frac{1}{7}$ of an Eng. Tun
The Steckan contains 16 Mingles, each of which make two Pints English
The Hogshead of Bourdeaux, according to the just measure thereof should contain 12 $\frac{1}{2}$ Steckans or 200 Mingles of Wine and Lee, and 12 Steckans or 192 Mingles clear Wine that is about $\frac{4}{5}$ of an English Hogshead
The Bourdeaux Tun of Wine should weigh with the Hogshead 2000 Pound and in Terms of Marine in Fraighting of Ships by a Tun is meant 2000 weight there being reckon'd 112 pound to the Hundred.
A Tun of France Contains 3 Muids or 3 $\frac{3}{7}$ English Hogsheads that is $\frac{6}{7}$ of an English Tun.

The Assays Weights & Values of Several Foreign Silver Coines

Coin	Allay	Weight	Stand. wt	Value
The Piastre of Spain or Sevill piece of 8 Reales now reduced to ten	W. 1	[illegible]	[illegible]	[illegible]
The new Sevill piece of eight	[illegible]	[illegible]	[illegible]	[illegible]
The Mexico piece of eight	W. 1	[illegible]	[illegible]	[illegible]
The Pillar piece of eight	Sta	[illegible]	[illegible]	[illegible]
The Peru piece of eight coarser but of uncertain allay				
The old Ecu of France or piece of 60 Sols Tournois	W. 1	[illegible]	[illegible]	[illegible]
The new Ecu of France or piece of 5 Livres or [illegible]	[illegible]	[illegible]		
N.B. The Ecu of France should be 2 dwt worse by Law				
The Crusado of Portugal or Ducat worth 400 Rees now marked and raised to 480 Rees	W. 2	[illegible]	[illegible]	[illegible]
The Patacks or Patacoons of Portugal worth 300 Rees now marked & raised also				
The Ducaton of Flanders or piece of 60 Sols or Patars	[illegible]	[illegible]	[illegible]	[illegible]
The Patacoon of Flanders or Cross Dollar or piece of 48 Patars	W. 12	[illegible]	[illegible]	[illegible]
The Ducaton of Holland or piece of 63 Stivers	[illegible]	[illegible]	[illegible]	[illegible]
The Patacoon Lion Dollar or Rix Dollar of Holland or piece of 50 Stivers	[illegible]	[illegible]	[illegible]	[illegible]
The three Guilder piece of Holland or piece of 60 Stivers	W. 2	[illegible]	[illegible]	[illegible]
The Guilder, Florin or piece of 20 Stivers	[illegible]	[illegible]		
The ten Schilling piece of Zealand or piece of 60 Stivers	W. 2	[illegible]	[illegible]	[illegible]
The Lion Dollar of Holland or [illegible] of the Ducaton	[illegible]	[illegible]	[illegible]	[illegible]
The Ducaton of Collen	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollar or Patacoon of Collen	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollar or Patacoon of the Bishop of Liege	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollar of Mentz	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollar of Frankfort	W. 9	[illegible]	[illegible]	[illegible]
The Rix Dollar of the Elector Palatine of the Rhine & Bavaria before 1620		[illegible]		
The Rix Dollar of Nurembergh	[illegible]	[illegible]	[illegible]	[illegible]
The old Rix Dollar of Nurembergh	[illegible]	[illegible]	[illegible]	[illegible]
The old Rix Dollar of Hannover	[illegible]	[illegible]	[illegible]	[illegible]
The double Guilder of the Elector of Hannover	[illegible]	[illegible]	[illegible]	[illegible]
The Guilder of the Elector of Hannover or piece of ⅔	[illegible]	[illegible]	[illegible]	[illegible]
The half Guilder of the Elector of Hannover or piece of ⅓	[illegible]	[illegible]	[illegible]	[illegible]
The Guilder of the Duke of Zell or piece of 16 Gute Groshen	[illegible]	[illegible]	[illegible]	[illegible]
The Guilder of the Bishop of Hildesheim piece of 24 marien Groshen now raised to 26	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollar of Magdeburgh	[illegible]	[illegible]	[illegible]	[illegible]
The Guilder or Gulden of Magdeburgh	[illegible]	[illegible]	[illegible]	[illegible]
The old Rix Dollar of the Elector of Brandenburgh	[illegible]	[illegible]	[illegible]	[illegible]
The old Guilder of Brandenburgh now raised from 24 to 26 Marien Groshen	[illegible]	[illegible]	[illegible]	[illegible]

Coin	Allay	Weight	Stand. wt	Value
The Guilder of Brandenburgh or piece of ⅔	[illegible]	[illegible]	[illegible]	[illegible]
The half Guilder of Brandenburgh or piece of ⅓	[illegible]	[illegible]	[illegible]	[illegible]
The Guilder of the Elector of Saxony or piece of ⅔	[illegible]	[illegible]	[illegible]	[illegible]
The old Bank Dollar of Hamburgh	[illegible]	[illegible]	[illegible]	[illegible]
The old Rix Dollar of Lubec	[illegible]	[illegible]	[illegible]	[illegible]
The four mark piece of Denmark of coarser allay	[illegible]	[illegible]	[illegible]	[illegible]
The four mark piece of Denmark of finer allay	[illegible]	[illegible]	[illegible]	[illegible]
The eight Mark piece of Sweden	Sta	[illegible]	[illegible]	[illegible]
The four Mark piece of Sweden	[illegible]	[illegible]	[illegible]	[illegible]
The two Mark piece of Sweden	[illegible]	[illegible]		
The old Dollar of Dantzic	[illegible]	[illegible]	[illegible]	[illegible]
The old Rix Dollar of Thorn near Dantzic	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollars of Sigismund III & Uladislaus IV Kings of Poland	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollar of the late Emperor Leopold	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollar of his Predecessor Ferdinand III	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollar of Ferdinand Arch Duke of Austria	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollar of Basil	[illegible]	[illegible]	[illegible]	[illegible]
The Rix Dollar of Zuric	[illegible]	[illegible]	[illegible]	[illegible]
The old Ducat of Venice with [illegible] Ducatus Venetus upon it a piece of [illegible] Lire [illegible] Sols de Piccoli	[illegible]	[illegible]	[illegible]	[illegible]
The half Ducat	[illegible]	[illegible]	[illegible]	[illegible]
The new Ducat with the Number 124 upon it signifying 124 Sols or 6 Livres 4 Sols de Piccoli		[illegible]		
The half thereof		[illegible]		
The Crusado [illegible] or St Mark of Venice with the Number 140 upon it signifying 140 Sols or 7 Livres de Piccoli		[illegible]		
The half Crusado of the same form		[illegible]		
The quarter Crusado of the same form		[illegible]		
Another Coin of Venice	[illegible]	[illegible]	[illegible]	[illegible]
The piece of Two Julios	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat de Banco of Naples or piece of 5 Tarins or 10 Carlins or 100 Grains	[illegible]	[illegible]	[illegible]	[illegible]
The half Ducat	[illegible]	[illegible]	[illegible]	[illegible]
The Tarin or fifth part of the Ducat	[illegible]	[illegible]	[illegible]	[illegible]
The Carlin or tenth part of the Ducat	[illegible]	[illegible]	[illegible]	[illegible]
The Scudo Ecu or Crown of Rome or piece of 10 Julios or 100 Baiocchi		[illegible]		
The Teston of Rome or piece of 3 Julios	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat of Florence & Leghorn or piece of 7 Livres or 10½ Julios	[illegible]	[illegible]	[illegible]	[illegible]
The Julio of Rome		[illegible]		
The Piaster Ecu or Crown of Ferdinand II Duke of Tuscany	[illegible]	[illegible]	[illegible]	[illegible]
The Piaster Ecu or Crown of Cosmo III present Duke of Tuscany whose money is [illegible] 4 dwt lighter than those of his Father this piece is 10 Julios	[illegible]	[illegible]	[illegible]	[illegible]
The Crusad of Genoa or piece of [illegible] Livres	[illegible]	[illegible]	[illegible]	[illegible]
The [illegible] of Genoa or piece of [illegible]				
The Piaster Ecu or Crown of Milan		[illegible]		
The Philip of Milan a piece of [illegible] Livres		[illegible]		
The Livre or 20 Sols piece of Savoy		[illegible]		
The ten Sols piece of Savoy		[illegible]		
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		
Another [illegible]	[illegible]	[illegible]		
Another	[illegible]			

Gold Monies Unworne

Coin	Allay	Weight	Stand. wt	Value
The old Lewidor	[illegible]	[illegible]	[illegible]	[illegible]
The half and quarter in proportion	[illegible]	[illegible]	[illegible]	[illegible]
The new Lewidor	[illegible]	[illegible]	[illegible]	[illegible]
The half & quarter in proportion	[illegible]	[illegible]	[illegible]	[illegible]
The old Spanish double Doubloon	[illegible]	[illegible]	[illegible]	[illegible]
The old Spanish double Pistole	[illegible]	[illegible]	[illegible]	[illegible]
The old Spanish Pistole	[illegible]	[illegible]	[illegible]	[illegible]
The new Sevill double Pistole	[illegible]	[illegible]		
The new Sevill Pistole		[illegible]		
The half & quarter in Proportion				
The [illegible] Moeda or double Moeda of Portugal new Coined	[illegible]	[illegible]	[illegible]	[illegible]
The Double Moeda as they come into England	[illegible]	[illegible]	[illegible]	[illegible]
The Moeda of Portugal	[illegible]	[illegible]	[illegible]	[illegible]
The half Moeda	[illegible]	[illegible]	[illegible]	[illegible]
The Hungarian Ducat	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat of Holland coined ad Legem Imperii	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat of Campen in Holland	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat of the Bishop of Bambergh	[illegible]	[illegible]	[illegible]	[illegible]
The Double Ducat of the Duke of Hannover	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat of the Duke of Hannover	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat of Brandenburgh	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat of Sweden	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat of Denmark	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat of Poland	[illegible]	[illegible]	[illegible]	[illegible]
The Ducat of Transilvania	[illegible]	[illegible]	[illegible]	[illegible]
The Sequin or Chequin or Zechin of Venice	[illegible]	[illegible]	[illegible]	[illegible]
The old Italian Pistole	[illegible]	[illegible]	[illegible]	[illegible]
The double Pistole of Pope Urban 1634		[illegible]		
The half Pistole of Innocent [illegible] 1685		[illegible]		
A Double Pistole of Placentia		[illegible]		
A Double Pistole of Genoa 1621		[illegible]		
A Double Pistole of Milan		[illegible]		
A Single Pistole of Milan		[illegible]		
A Pistole of Savoy 16[illegible]		[illegible]		
Double Ducats of Castile, Genoa, Portugal, Florence, Hungary, Venice	[illegible]	[illegible]		
Single Ducats of the same Places	[illegible]	[illegible]		
Double Ducats of several forms in Germany	[illegible]	[illegible]		
Single Ducats of the same places	[illegible]	[illegible]		
Double Ducats of Genoa	[illegible]	[illegible]	[illegible]	[illegible]
Single Ducats of Genoa & [illegible] and Zurich	[illegible]	[illegible]	[illegible]	[illegible]
Pistols of Rome, Milan, Venice, Florence, Savoy, Genoa, Parma, [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
A Barbary Ducat with Arabic Letters on both sides in square Tablets without any Effigies or Escutcheon	[illegible]	[illegible]	[illegible]	[illegible]